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# **An Approach-Avoidance Examination of Corporate Project (De) Escalation Decisions in Saudi Companies**

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**A Thesis Submitted to the University of Huddersfield in  
Partial Fulfilment of the Requirements for the Degree of  
Doctor of Philosophy**

**The University of Huddersfield**

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# Abstract

The escalation/de-escalation of commitment to capital investment decisions is a complex phenomenon that is under-researched not least because of the fragmented nature of the extant literature, the absence of comprehensive studies of why managers escalate commitment particularly for projects that are perceived to be failing, and the overlooking of the capital investment project initiating process in the existing studies. These deficiencies in the existing literature seriously limit the understanding of this phenomenon and its impact on practice, hence the motivation for the present study.

Drawing on an extensive review of the relevant literature that spans a period of five decades and includes a careful scrutiny of theoretical alternatives and more than 130 empirical works, this research develops an encapsulating approach-avoidance model that is applied in a large mixed-methods study of corporate managers in 274 Saudi companies. This model not only systematically groups and examines the direct effect of a large array of project-specific and non-project-specific variables, but it also captures the intervening role of project auditing in the escalation/de-escalation decisions.

Primary data were mainly collected by means of a survey using a Likert-scale questionnaire that was specifically designed to take into account the purposes and data requirements of the present study as embodied in its theoretical model and hypotheses. Additional data were collected from conducting face-to-face interviews in three companies. To overcome one of the deficiencies of existing studies as mentioned above, sufficient data on the capital investment process were sought and obtained through the survey and interviews. Besides descriptive statistics, multinomial logistic regression and MODPROBE macro tests were applied to examine direct and indirect relationships and levels of data fit.

An overall finding of this study is that the (de)-escalation phenomenon is not only present in the Saudi corporate environment but it is pervasive throughout the industrial spectrum, thus confirming the need for the comprehensive and insightful approach adopted by the present research to examine its determinants and their policy implications. The detailed statistical analysis provides sufficient evidence to support this approach. While it is found that contextual and project determinants have the most influence on how Saudi managers commit to a course of action, the (de)-escalation of commitment is, contrary to what is portrayed in most existing studies, influenced by a combination of rather than by isolated factors. Notwithstanding these results, of significant relevance to knowledge in this under researched area are the findings that: a) the commitment determinants are underlined by the type of capital investment process, and b) that project audit plays a major moderating role in how the determinants impact the (de)-escalation of commitment.

Apart from the usual limitations associated with using a survey method, this study would have been able to offer more insights had it not been for the sensitivity of the topic and the socio-cultural inhibitors that prevented managers from taking part in more interviews. Nevertheless, the richness of the data collected and the findings from the elaborate analysis undertaken offer not only opportunities for future research but also practical guidelines to managers with respect to making capital project decisions.

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## **List of Abbreviations**

<i>ARR</i>	Accounting Rate of Return
<i>CEO</i>	Chief Executive Officer
<i>DCF</i>	Discounted Cash Flow
<i>GDP</i>	Gross Domestic Production
<i>GP</i>	Gross Profit
<i>IRR</i>	Internal Rate of Return
<i>MOCI</i>	Ministry of Commerce and Industry
<i>MOE</i>	Ministry of Education
<i>MOEP</i>	Ministry of economic and planning
<i>MOHE</i>	Ministry of Higher Education
<i>MLR</i>	Multinomial Logistic Regression
<i>NPV</i>	Net Present Value
<i>PB</i>	Pay Back
<i>PM</i>	Project Management
<i>ROI</i>	Return on Investment
<i>SAMA</i>	Saudi Arabian Monetary Agency
<i>SAR</i>	Saudi Arabian Riyals (currency)

## **Dedication**

I wish to dedicate this study to:

My beloved mother *Fatimah* and my cherished father *Rida*

My dearest spouse *Moneer*

My wonderful sisters and brothers:

*Rana*

*Reem*

*Raed*

*Ramzy*

*Riyad*

My sweethearts:

*Hamed*

*Hala*

*Rula*

*Farah*

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# **Chapter One**

## **Introduction**

---

### **1.1 Introduction**

This chapter presents an overview of the research and outlines the structure of the dissertation. The chapter consists of the following sections: a brief background of the research topic (Section 1.2), an explanation of its rationale (Section 1.3), the research objectives and questions (Section 1.4), the research methodology (Sections 1.5), the research theoretical model (Section 1.6), and dissertation chapter contents (Section 1.7).

### **1.2 Research Background**

Commitment to a course of action, within the context of capital project management, is a double-edged sword. Commitment could be considered as an encouraging tool that supports managers to complete difficult tasks. Alternatively, commitment could preclude managers from acknowledging and recognizing failing investment projects, which might result in the long continuance of projects with negative net present values (Devaney, 1991). This long commitment to failing projects results from the fact that conditions that surround decisions to stop one action in order to undertake another or to abandon a course of action are laden with uncertainties and regularly create problems for decision-makers. Examples of conditions include a project's information ambiguity (Chakravorty, 2009), a manager's personal responsibility for the failing project (Alvarez et al., 2011), political support for projects (Winch, 2013), and sunk costs (Ting, 2011).

Given the essentially uncertain nature of these conditions, the decision maker faces the problem of “what to do?” (McCaskey, 1979). One kind of decision arising from this complicated situation is to de-escalate commitment. The “De-Escalation of Commitment” (e.g. Brockner et al., 1979; Tegar, 1980; Nathanson, et al., 1982; McCain, 1986; Staw and Ross, 1987a; Simonson and Staw, 1992; Pan and Pan, 2011) implies awareness of the means of commitment reductions and guidelines for managers to decrease their commitment to a failing course of action.

On the other hand, another possible course of action, discussed in the organisational behaviour, strategic management, and social psychology literatures, is the “Escalation of Commitment” phenomenon (Bowen, 1987). This is similar to waiting for a bus that will never come, or continuing to repair an old car that will never be efficient. Complications can further lead to what is called an “Entrapment” situation (Drummond, 1994; McElhinney and Procter, 2005; Ku, 2008; Gunia et al., 2009; Yen and Lin, 2012). Although there has been some confusion in the literature as to whether escalation of commitment and entrapment are synonymous (Drummond, 1994; Gerrit, 1995), there is a clear difference between the two because in the entrapment situation the choice element disappears as managers find themselves in a deadlocked course of action (Brockner and Rubin, 1985; Bowen, 1987; McElhinney and Procter, 2005).

### **1.3 Research Rationale**

The rationale for this research arises from two related aspects of the capital project decision process on the above phenomenon:

- The first aspect is the (de)-escalation of commitment itself, where the significance of investigating managers' escalation decisions stems from the need to examine and understand factors as well as causes of managers' tendency to add more resources to failing projects, which is deemed an irrational and costly behaviour. Therefore, a key reason for examining these decisions and understanding the underlying causes is to be then able to provide managers with alternatives to avoid such irrational behaviour.
- The second aspect is associated with the initial strategic plan of the capital project. While setting the goals and objectives of the strategic plan is a vital element in the decision making process, it could be considered as the first building block in deciding whether to invest in a capital project, escalate or even de-escalate commitment to an on-going project.

These two related aspects are explained in detail in Sections 1.3.1 and 1.3.2 below.

### **1.3.1 The Escalation Dimension**

The academic interest in the issue of escalation of commitment in project management has been gaining momentum since the mid-seventies (Staw, 1976; Brockner and Rubin, 1985; Staw and Ross, 1987a; Schaubroeck and Davis, 1994; Hantula and Bragger, 1999; Moon, et al., 2003; Sivanthan et al., 2008; Korzaan and Morris, 2009; Ting, 2011; Contractor et al., 2012; Salter et al., 2013). This is emphasised by the often eye-catching titles given to the escalation phenomenon in the existing literature, such as: “Knee deep in the big muddy” (Staw, 1976); “Too much invested to quit” (Tegar, 1980); “The dead loss effect” (Kahneman and Tversky, 1984); “The sunk cost effect” (Arkes and Blumer, 1985); “Entrapment” (Brockner and Rubin, 1985); “Deep waders in muddy waters” (Dodd-McCue et al., 1987); “Too little too late” (Drummond, 1994); “Throwing good money after bad” (e.g. Bondt and Makhija, 1988; Gosh, 1995); “Can’t stop on a dime” (Goltz,

1999) “Your sunk costs, my escalation of commitment” (Gunia et al., 2009) and “Cleaning up the big muddy” (Sleesman et al., 2012).

Further, this academic interest was perceived in presenting cases that epitomized real well-known examples of escalation of commitment in the existing literature in different countries. For example, in the UK: installing an e-project (Pan and Pan, 2011), in Denmark: installing an IT large Danish project for higher education institutions (Mähring et al., 2008), and in the USA: installing a six-sigma programme in an electrical company (Chakravorty, 2009) or building a nuclear power plant (Ross and Staw, 1993).

These examples of sensational titles and symbolized cases hint at the escalation of commitment phenomenon in terms of: (a) a series of actions linked to an investment to attain an established objective; (b) the availability of feedback information, suggesting that the chosen investment is not achieving the established objectives; and c) an opportunity to commit additional resources to achieve the established objective (Staw, 1982; Wilson and Zhang, 1997). The financial consequences of project escalation in real life cases can be quite spectacular (see Table 1.1).

**Table 1.1: Examples of Escalated Investment Projects\***

<i>Project</i>	<i>Location</i>	<i>Estimated costs</i>	<i>Finished costs</i>	<i>Type of escalation</i>
Concorde	UK/France	£80 million	£700 million	Inter-governmental
Expo’ 86	Canada	\$78 million	\$1.5 billion	Political
Humber Bridge	UK	£19 million	£120 million	Economic
Sydney Opera House	Australia	\$2 million	\$102 million	Technological/political
Millennium Dome	UK	£785 million	£960 million	Political
Euro Disney	France	\$2.5 million	\$4.4 billion	Economic
Olympic Village	UK	£2.4 billion	£9.3 billion	Economic/political

\* Source: information was summarized from: Ross and Staw (1986); Wilson and Zhang (1997); Nutt (2001); and Hardman (2008).

The UK Millennium Dome is a fitting example of the escalating commitment phenomenon. The Dome was built in London and intended to be one of the best shows in the world in the new Millennium 2000. *“The Dome was hyped as futuristic, flashy, and high tech, but became a national embarrassment within weeks of opening...the Millennium Dome was originally championed by the Conservative Government which lost power in 1997. The new Labour Prime Minister, at that time, took over the project calling it a triumph of confidence over cynicism, boldness over blandness”* (Nutt, 2001: 2). In order to complete the project, the government kept spending time, effort, and money. *“...The government put £785m into the project and had to infuse it with an additional £175m to keep it afloat...twelve million visitors were forecast but fewer than 4.5 million, many with cut-price tickets, paid to get in”* (Nutt, 2001: 2). The Government was left with the difficult choice of selling the Dome or adding more resources to the project, knowing that the Dome costs about *“£1 million monthly to keep standing”* (Financial Times, 2001). Even worse, *“...bidders were planning to bulldoze the building and use its picturesque location on the River Thames to build something else”* (Nutt, 2001: 2).

A more recent example is building the Olympic Village in Stratford, East London, for the 2012 Olympic Games. Although all plans and arrangements were approved in addition to constructions that were described to be well ahead of schedule (Rajan, 2009), there were a few more considerations that caused some writers to evoke the Vancouver games (O'Conner, 2009), or some to call it *“an economic horror story”* (Hardman, 2008: 14). The first is considering the funding and budgeting issues where, besides the difficulties of raising funds, the project's costs more than tripled the original budget by the time the

project was completed (Hardman, 2008). The second is considering the economic return of this event, which was perceived to be weak (Hardman, 2008). However, a report by a government department for the UK trade and investment division stated that hosting the 2012 London Olympics resulted in a £9.9bn boost in trade and investment in the UK economy (BBC news, 2013).

### **1.3.2 The Strategic Project Management Dimension**

The importance of examining escalation decisions stems from the importance of capital investment decision-making in the form of capital budgeting, as the former (i.e. the escalation decision) is a logical extension of the latter (i.e. the capital investment decision). The strategic dimension refers to the procedures for recognizing, appraising, and choosing between projects that are likely to have a great influence on what the organisation does, where it does it and how it does it (Adler, 2000). Therefore, capital budgeting and strategic management assist managers' decisions and activities by directing them towards organisational success and growth (Blumentritt, 2006).

Moreover, the strategic decision making and escalation of commitment paradigms are seen to be tandem with each other. The former focuses on how decision makers are expected to perform, and the latter tries to clarify why they follow particular courses of action (Drummond, 1994). Further, if a strategic investment decision succeeds it will lead the company to achieve great advantages and, in case of failure, the company will either lose an important opportunity, or significant resources will be wasted (Adler, 2000). For example, a case study presented by Collis and Montgomery (1998: 26-27) typifies a

paradigm of what they called “*managers’ mistake when they define relatedness according to product characteristics rather than resources*”, which eventually resulted in strategic misalignment. In this case, the company faced a remarkable reduction in its product’s sales (industrial thermostats) which then led the marketing team to suggest starting a new line of household thermostats. At first look, the strategy seemed sensible as the company would continue as a thermostat producer, adding only an additional product line, but a more careful examination illustrated the reality that the match between the two businesses was not at all close. It turned out to be an unwise decision because, after only three years, the company had to reverse that decision. Another example of strategic misalignment and escalation implications is found in the McKinsey’s (2007) global study of ‘*how companies spend their money*’, based on survey responses received from 2507 executives (26% corporate-level executives; 26% division leaders; and 28% frontline managers). In this case, senior executives indicated that 17% of the resources invested by their companies went toward underperforming investments that needed terminating and that 16% of their investments were a mistake. Division leaders and frontline managers also revealed that 21% of the investments should not have been authorized at all, while another 21% should be terminated.

Another important reason for linking escalation of commitment to the project’s strategic investment plan and goals is that any problem with the investment project might lead managers to escalate when they have no set budget. This behaviour, as suggested by Heath (1995), could be attributed to either one of two causes:

- A problem with the investment strategic plan.

- A problem with applying the investment strategic plan.

The relationship between strategic goals and how projects are managed seems to be a logical one as suggested by Turner et al. (1988) and evidenced by the results reported by Glaister et al. (2008) about the existence of a strong relationship between strategic planning and performance. Other studies however found no such evidence. For example, Falshaw et al. (2006) examined the link between formal strategic planning and companies' performance in 113 UK firms through the effect of three major variables: firm size, environmental turbulence, and type of industry contingency. They found no proof of a relationship between strategic planning and financial performance, because according to their justification, the factual relationship between the related variables was not the same as assumed, and the measurement of planning systems obtained by the formal planning process determinants used were not important for explaining performance. Collis and Montgomery (1998) argued that the lack of performance success does not depend mainly on how sparkling a strategy is, because it does not necessarily lead to success in all types of companies. As each company is established differently, it manages its operations from a different perspective, and it has various types of funds. They further argued that, the key to success is the sense of internally reliable strategy modified to a firm's funds and opportunities. Otherwise if the company's strategy is designed away from such sense, it might weaken the company's performance, or "*at worst, the lack of consistency could be the iceberg that sinks the corporate ship*" (p. 81).

Therefore, it can be concluded from the above that escalation may possibly start when there are some difficulties facing the initiated project. These difficulties may arise as a



result of misapplying the investment strategic plan or because the project is not meeting its goals, i.e. when there is a problem in the project's performance, or even worse, when the company adopts a wrong strategic investment plan.

Having clarified the rationale of the current study, the following section presents its aim, objectives and research questions.

#### **1.4 Research Aim, Objectives and Questions**

Drawing on a vast body of relevant literature and mainly guided by the *approach-avoidance* theory, the prime aim of this research is to empirically examine the capital project (de)-escalation phenomenon in the Saudi corporate environment. The research worth and practical viability of this aim have both been established not only through a critical review of the literature but also through initial semi-informal discussions with project managers. Very early in this research project the researcher decided, on the basis of sufficient knowledge already acquired from the literature, to randomly contact by telephone practising project managers in ten different companies based in Jeddah City. It quickly transpired from the conversations with those managers that the research project was topical and practically relevant, which they substantiated with brief narrations of their own experience with project escalation cases.

To achieve this overall aim, the research has the following objectives:

1. Examine the impact of project-specific determinants on managers' decisions to (de)-escalate commitment.
2. Examine the psychological dimension in capital project (de)-escalation of commitment decisions.

3. Examine the extent to which contextual and organisational factors influence capital project (de)-escalation of commitment decisions.
4. Examine the moderating role that operational audit might have on project (de)-escalation of commitment decisions.

The research seeks to fulfil these objectives by collecting and analysing primary data from companies in Saudi Arabia to provide answers to the following questions:

1. What are the project-specific determinants that influence managers in Saudi companies to (de)-escalate commitment in capital project decisions?
2. To what extent are project managers in Saudi companies affected by non-project-specific factors when making (de)-escalation of commitment decisions?
3. Does operational audit have a moderating role in the impact of escalation/de-escalation determinants on project (de)-escalation of commitment decisions in Saudi companies?

### **1.5 Research Methodology**

For the purpose of the current study, and based on an extensive review of the escalation/de-escalation of commitment theoretical and empirical literatures, care is taken to ensure a wider understanding of factors that influence managers' choices and also to enhance the validity and reliability of the measured variables. For this purpose, theories and empirical studies relevant to the research topic are reviewed and compared to identify study variables and derive research hypotheses as well as consider methodological issues for the intended study of capital project (de)-escalation of commitment in the Saudi corporate context. The research methodology is explained in detail in Chapter Five.

The most prevalent study methods, reported in the (de)-escalation empirical literature, are laboratory experiments and single case studies. According to Creswell (2009) the adoption of a specific research paradigm is influenced by the research problem, experience of the

researcher, and the audience to whom the researcher seeks to report. Given the complexity of the research problem and the many variables that need to be examined, the current study is both exploratory and explanatory in nature and is based on both the positivism philosophical perspective as well as the phenomenological paradigm. It uses a combination of quantitative and qualitative methods in order to answer the research questions. Quantitative methods, in terms of survey data collection and appropriate statistical analysis, are used to test the research hypotheses, which were developed in agreement with the objectives and questions of the current study, while qualitative methods are used to augment the analysis and enrich the understanding of the various facets of the research topic.

Empirically, as mentioned above, this study is designed to use a multi-method research approach (Table 1.2) through both field surveys (quantitative) as well as interviews (qualitative) to achieve the objectives of this research. The questionnaire survey method, widely used by empirical studies in the social sciences (Creswell and Clark, 2011), is the first method chosen for collecting primary data for the present study. Therefore, questionnaires were used to collect essential data on the capital investment decision making process, problematic project evaluation and (de)-escalation determinants in Saudi companies. The data collected this way were used for descriptive as well as inferential purposes.

**Table 1.2: Overview of Research Methods**

	<i>Type of Study and Study Stage</i>		
	<i>Stage 1</i>	<i>Stage 2</i>	<i>Stage 3</i>
	<b>Preliminary study</b>	<b>Hypotheses testing</b>	<b>In-depth case study</b>
Objectives	<ul style="list-style-type: none"> <li>• Validate research topic</li> <li>• Generate direction of research and hypotheses</li> </ul>	<ul style="list-style-type: none"> <li>• Test hypotheses</li> <li>• Determine existence of links</li> <li>• Generalize results</li> </ul>	<ul style="list-style-type: none"> <li>• Highlight most relevant factors</li> </ul>
Method	<ul style="list-style-type: none"> <li>• Literature study</li> <li>• Pilot interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Survey Questionnaires</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews</li> </ul>

The survey questionnaire is self-administered and it was distributed and collected back by hand to the targeted companies in the port city of Jeddah, the second largest city in Saudi Arabia and its commercial capital. Due to cultural considerations, it is customary and compulsory in Saudi Arabia that when the researcher is female, as is the case here, a male intermediary needs to be employed by the researcher to administer the questionnaire survey on her behalf. The survey questionnaire was purposely developed and designed to fit with the current research and was informed by both theoretical and empirical literature. The questionnaire consists of five sections; the first section is for gathering general information on the respondents (job title, experience, and authority) and the surveyed companies (ownership type, size and age of company, main and sub-business). The second section focuses on the capital investment process description. The third and fourth sections cover the project evaluation and the (de)-escalation decision including the decision determinants and the degree of influence on managers' choices. The final section asks about respondents' name, company name and whether the respondents would be willing to take part in interviews.

The translated questionnaire of the final English version was distributed to project managers in 800 different companies in Jeddah City during the period starting early August to late December 2010. A total of 300 questionnaires were received. However, 26 of these were excluded as they were unusable/partially completed, yielding a total of 274 usable questionnaires (35.4% response rate). Questionnaires were piloted prior to the full scale survey and issues related to the validity and reliability of the study's instruments were considered. Descriptive statistics (means and percentages) and advanced statistical tests (i.e. Mann-Whitney U test, Chi-Square test, Multinomial Logistic Regression and the MODPROBE Macro for the moderation effect) are utilized to analyse the collected data using the SPSS statistical package.

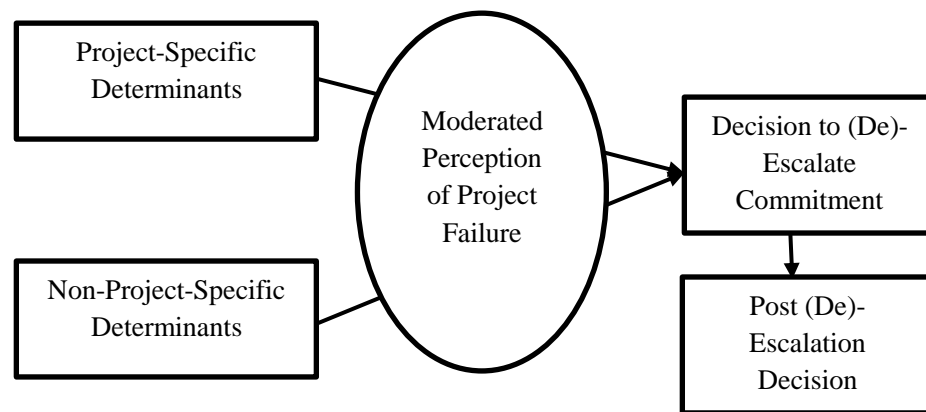
The second method used to collect primary data was semi-structured interviews, in order to obtain and explore more in-depth information about research issues as a supplement to the survey questionnaire (e.g. Bryman and Bell, 2007; Saunders et al., 2009). The interviewees were chosen on their willingness to participate after they completed and returned the survey questionnaires. Three participants from three different companies agreed to be interviewed; a Chief Executive Officer for a major transportation company, a Chief Finance Officer of a multinational food company, and a Project Manager for a building contractor company.

## **1.6 Research Theoretical Model**

The theoretical model of the current research (explained in detail later in Chapter five) is initially constructed on the suggested categorization of determinants that was presented in

the Ross and Staw's (1993) model of escalation. However, the present study enhances Ross and Staw's (1993) model by adding two essential dimensions based on the gaps identified in the literature (see Chapters Three and Four). The first dimension is considering *Approach-Avoidance* assumptions as the theoretical basis for explaining managers' choices. The second dimension, which was mainly informed by existing empirical studies, is extending the number of factors that are included in each set of determinants as well as examining the moderating role of operational audit on the impact of these determinants. In total 52 variables have been identified and put into two groups of determinants (explained in detail in Chapters Five and Six).

Figure 1.1 below shows the study's theoretical model, which depicts the direct relationship between the two groups of determinants (project-specific and non-project-specific variables) and managers' (de)-escalation decisions. Additionally, the model shows the indirect influence of project operational audit as a moderator of the impact of the determinants on managers' escalation/de-escalation decisions.



**Figure 1.1: The Study's Theoretical Model**

## 1.7 Dissertation Structure and Chapter Content

The remainder of this dissertation comprises of eight more chapters as follows:

- **Chapter Two** covers the characteristics and features of the socio-economic context in Saudi Arabia through explaining the effect of traditions, ethics, and beliefs on managers' decisions in Saudi companies.
- **Chapter Three** consists of three sections; the first elaborates further on the definition, importance and evolution of both strategic project management (capital investment) and the (de)-escalation phenomenon. The second section provides an extensive coverage of the theoretical relevant literature, particularly the popular theoretical models encountered in the (de)-escalating commitment literature, the factors that fit within each theory and their influence on managers' (de)-escalation decisions. The third section provides an evaluation for the effectiveness of the suggested theories in explaining project (de)-escalation decisions.
- **Chapter Four** presents a review of empirical studies -both laboratory based and those reporting company practices- and gives a detailed assessment of the variables and determinants that influence the (de)-escalation phenomenon. The chapter also discusses the role of project operational audit as a moderating variable. The overall purpose of this chapter is to critically examine the existing empirical literature, identify issues and themes, and highlight the need for additional work to inform the present study.
- **Chapter Five** presents the research theoretical model and hypothesis development process, provides justifications and explanations for the research philosophy and methodology that is used to achieve the research objectives. Moreover, the chapter details the research process with respect to data collection (questionnaires and interviews) as well as the descriptive and inferential statistical techniques used to analyse the collected data to answer the research questions.

- **Chapter Six** presents the descriptive results of the questionnaires survey. The data analysis in this chapter is mostly in the form of mean scores and percentages and it gives an overview of the capital investment process, project evaluation techniques, and the significance of (de)-escalation determinants on managers' choices in Saudi companies.
- **Chapter Seven** first explains statistical tests used for testing the research hypotheses and presents the results accordingly. The chapter then presents results of both the direct and indirect relationships identified in the (de)-escalation phenomenon. Multinomial Logistic Regression (MLR) is applied to test the first six research hypotheses, which represents the direct relationship between (de)-escalation determinants and managers' choices, while the MODPROBE Macro test is applied to the seventh research hypothesis, which deals with the moderating (or indirect) effect of project operational audit on the (de)-escalation of commitment.
- **Chapter Eight** complements the previous two chapters with an analysis of interview-based data collected from three companies. This sheds additional light on the results in the previous two chapters and galvanizes the findings further on the (de)-escalation of capital project decision making process in Saudi companies.
- Finally, **Chapter Nine** presents an overall summary of the research, including discussion of the research findings, limitations, policy implications, conclusions and suggestions for future research.

The next chapter presents an overview of the Saudi business environment in terms of its socio-economic dimensions.



## **Chapter Two**

### **The Socio-Economic Context of Saudi Arabia**

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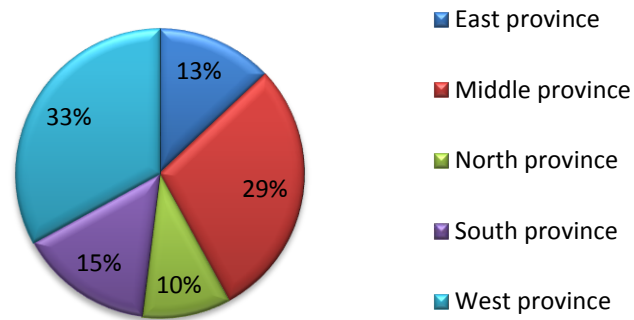
#### **2.1 Introduction**

The current study is applied in Saudi Arabia, considered to be one of the most important countries in the Arabian Gulf region in terms of its geographic location, distinctive culture, and economic development. This chapter covers essential aspects of the Saudi Arabian business environment as it examines and describes key macro level factors that relate to the overall aim and specific objectives of the research study as represented by the theoretical model introduced in the previous chapter.

In addition to a brief introduction of Saudi Arabia (Section 2.2), this chapter consists of the following sections: economic features (Section 2.3), market structure (Section 2.4), managerial profile (Section 2.5), and the chapter's summary (Section 2.6).

#### **2.2 A Brief Background**

The Kingdom of Saudi Arabia covers almost 80% of the Arabian Peninsula; it is spread over an area of approximately 1.960.582 square kilometres, which makes it one of the biggest countries in the region (Moran et al., 2007; Metz, 1992). The population of Saudi Arabia is about 30 million distributed across thirteen regions, which can be grouped in relation to their geographic position in five provinces as follows in Figure 2.1 (MOEP, 2013).



**Figure 2.1: Population Distribution**

Jeddah, which is located in the Kingdom's western region where the largest percentage of population resides, is known as the commercial capital of Saudi Arabia and, for the reasons listed below (JAU, 2011), is an ideal place for this research study of corporate capital project decision practices:

1. It is the second major city in the Kingdom with many key banks and businesses. It is also the home to some of the most successful merchants and businessmen in the Kingdom.
2. It is the gateway to the holy cities of Makah and Medina and other holy sites and Jeddah is therefore the trade and financial hub that results from being this gateway.
3. It is an important port due to its location on the Red Sea coast enabling trade with the Middle East, Africa and the rest of the world.
4. It is the country's third largest industrial city owing to the existence of a number of major factories. Jeddah is also located close to the first and second industrial cities (Jubail and Yanbu respectively).

Having clarified the importance and justification of the geographic location for conducting the current study, the following sections will give an overview of the features of the Saudi

Arabian economy as well as the characteristics of markets and managers in this environment.

### **2.3 Economic Features**

The development of the Saudi Arabian economy could be simultaneously linked, as Metz (1992) suggested, to the combination of three major events that formed the basis of this economy: first, the unification and expansion of the Kingdom that led to unifying a number of diverse areas of the Arabian peninsula under one ruler (in 1932); second, the discovery of oil in the Eastern Province just a few years after the establishment of Saudi Arabia (in 1935); and finally the rebuilding of Europe after the Second World War and its need for reliable sources of oil that greatly enhanced the position of the newly established Saudi Arabian oil industry (in 1945). Since then, Saudi Arabia has been going through a series of developments at all levels and sectors (e.g., social, economic, political, educational...etc.), perhaps the rate and urgency of progress has been most evident in the economy sector (Ramady, 2010; Saudi Aramco, 2006). The following sections highlight two aspects of the Saudi economy, which have affected its growth and development; the influence of oil, and the diversity of income resources.

#### **2.3.1 Influence of Oil**

The Saudi Arabian economy depends heavily on the oil sector; it is essentially oil-driven, and the dominance of oil is the most obvious characteristic of the economic structures in terms of the country's foreign exchange earnings, government revenues, and the source of growth of the national income (El-Mallakh, 1982; Aba Alkhail, 2007). Therefore, the

Saudi Arabian economy is influenced by two factors: the degree and growth rate of oil revenues and the government budgetary practices, the latter being the central link between the oil sector and the rest of the economy on the one hand, and economic growth in case of reduced or increased oil revenue on the other (Ramady, 2010).

In addition, the Kingdom, as the world's leading producer (11,726 thousand barrels/day) and exporter (8,865 thousand barrels/day) of petroleum (EIA, 2012), is an active member of the institutions of oil exporting countries such as the Organization of Petroleum Exporting Countries (OPEC) since 1960 (OPEC monthly bulletin, 2011) and the Organization of Arab Petroleum Exporting Countries (OAPEC) since 1968 (OAPEC monthly bulletin, 2011). Being a member of these institutions, has affected the domestic economy in terms of determining the level of income and the amount of oil production. For example, OPEC's aim is to organize and unite the petroleum strategies and to ensure the stability of oil markets in order to provide an efficient, economic and regular supply of petroleum to consumers, a steady income to producers and a fair return on capital for those investing in the petroleum industry (OPEC monthly bulletin, 2011).

Today, the Saudi economy is looking towards growth and prosperity; the GDP for the oil sector in 2012 was \$62.5 billion with a 5.7% growth rate (MOEP, 2013). The GDP of the oil sector in Saudi Arabia went through different cycles (see Table 2.1), which has had a strong influence on the Saudi economy. For example, in the 1970/1982 (boom cycle) the total public expenditure of the Kingdom increased from \$1678 million to \$63135 million with an average increase of 48% per year, but the decline in oil revenues (starting from

1983) influenced the public expenditure of the Kingdom as it fell steadily until reaching \$36646 million in 1986. This deterioration in public spending did not recover until the year 2004 (boom cycle) as it increased to reach \$76053 million, and since then, the increasing level of public spending is quite high, as it reached in 2011 an amount of \$224067 million (Al-Eqtisadiyah, 2012).

**Table 2.1: Saudi Economy Profile\***

<i>Year/ Cycle</i>	<i>Oil Sector revenues' range</i>	<i>Influence on the Economy</i>
1970-1982/ oil boom cycle	1,900-49,602	Rapid economic growth, elevated government expenditure on infrastructure, high per capita income, private sector demand.
1983-1987/ oil bust cycle	38,699-17,975	Imports fell, reduction in investment expenditures by both government and private sectors.
1988-1992/ recovery cycle	12,907-34,344	Reversal of fortunes due to improvement in world oil markets.
1993-1995/ stagnation cycle	28,260-28,194	Budget cuts, freeze on capital expenditure and slowdown in government cash disbursements that caused problems to private contractors.
1996-2002/ restructuring cycle	36,262-44,293	Progress in privatization, and capital; market reform to attract foreign direct investments.
2003-2008/ oil boom cycle	61,600-262,232	GDP growth increasingly, economy recovery, and high revenues.
2009-2010/ retrenchment cycle	115,845-178,737	Reduction in government revenues and foreign capital, tighter credit and investor risk aversion.
2011-2012/ oil boom cycle	275,829-305,285	Increase in government revenues and expenditures, encourage forging and local investment, decrease in domestic debt.

\*Source: information was summarized from Aba Alkhail, 2007; Ramady, 2010, and Al-Turki, 2013. Based on SAMA estimates to 2012 in million dollars.

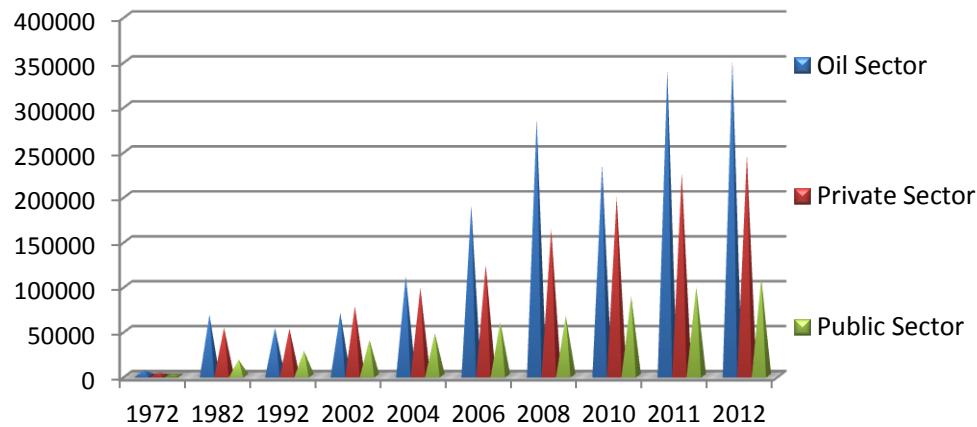
As a result of the fluctuations in oil prices, the Saudi Arabian government took critical steps to decrease the dependence on oil as the only source of income, in terms of varying the sources of national income through increasing the share of other productive sectors, in addition to being a member of several regional and international institutions or committees, as will be explained in the next section.

### 2.3.2 Diversification of Income Sources

The Saudi Arabian government aimed to diversify sources of national income as one of the objectives in the first five-year development plan in 1970 to reduce dependence on oil through increasing the share of other productive sectors in GDP. In the ninth five-year development plan (2010-2015), seven out of thirteen objectives have focused on the advancement of the Saudi economy and these abridged as follows:

*“diversify the economic base horizontally and vertically..., move towards a knowledge-based economy..., enhance the role of the private sector and expand domains of private investments (domestic and foreign) and public-private partnerships..., develop rational utilization of natural resources..., develop regulations aimed at raising efficiency and improving performance..., strengthen economic integration with (region, Arabian, and Islamic) countries..., and develop the sector of Small and Medium Enterprises to increase its contribution to GDP” (MOEP, 2013).*

The Saudi Arabian government’s concern to facilitate and encourage the diversification of the sources of income was demonstrated by the significant rise in income, in recent years, from non-oil sectors in both public and private enterprises (see figure 2.2). The total GDP of non-oil sectors has risen from \$4,578 in 1972 to \$354,614 in 2012, it is expected that the non-oil sector will continue to grow strongly in the fiscal year 2013- 2014, indicating government-led infrastructure and mining projects. Also, due to the weakening global demand, oil revenues were anticipated to decline in 2013, which would result in a slight slowdown by 4% in real GDP growth. But this is expected to pick up in 2014, where the real GDP growth is expected to be 4.4% as a result of the slight recovery in the oil sector (Saudi Gazette, 2013).



**Figure 2.2: GDP (in current prices) of Private, Government, and Oil Sectors**  
(SAMA national account statistics in million dollars, 2013)

In order to strengthen the political role the kingdom plays, the Saudi government has joined several institutions, which has influenced the gains achieved at the economic level in terms of enhancing the regional as well as the foreign trade and investment between the Kingdom and members of these institutions. For example, the League of Arab States, the Gulf Cooperation Council (GCC), the Islamic Development Bank (IDB), the World Trade Organization, the International Monetary Fund, the UNESCO, and the G20 (Ramazani, 1988; IMF, 2001; Martin and Mohaparta, 2003; WTO, 2005; League of Arab States historical background, 2000/2006; UN, 2006; Hassan and Lewis, 2007).

Additionally, the accomplishment and success in the diversifying of the national net income has depended greatly on the significant role played by the private sector in the process of economic development (privatization), as well as replacing foreign labour with Saudi nationals (saudization), which will be discussed next.

## **1. Privatization**

The concept of privatization has spread rapidly in both industrial countries and developing economies in the last two decades. The Saudi Arabian privatization effort was part of an international movement originally led by the United States and the United Kingdom between 1979 and 1988, where several government institutions were privatized such as British Airways, British Petroleum, and British Telecom in the UK as well as key government organisations in the USA (Aluwasheg, 2013). This adoption of privatization in many countries made it possible for Saudi Arabia to learn from these experiences and to draw important lessons that are relevant to its own economic structure (Ramady, 2010).

Privatization was first introduced in the mid-1980s as a main policy objective by the Saudi government and the objectives and policies of privatization were adopted in 1997, yet it was not until 2001 (the ninth five-year development plan) that implementation procedures were enacted. The Supreme Economic Council was charged with the responsibility of supervising the privatization programme and monitoring its implementation, in coordination with other government agencies (Akoum, 2009).

In developing countries, privatization could be used as a tool to: (1) improve the level of productivity in public organizations, which is normally two to three times lower than private firms and in some cases significantly lower; (2) improve service delivery of high-cost critical sectors that impact the economy as a whole; and (3) reduce the financial burden of losses (Kikeri and Nellis, 2004). In addition to the fundamental conflict of interest created by the fact that the government was judging its own performance



(Ramady, 2010), three more reasons could be considered as drivers for privatization: the first is, as an oil rich-country, Saudi Arabia has used privatization as a means of diversifying its economic base, moving away from the heavy reliance on the oil sector revenues (Seznec, 2002). The second is that public enterprises were unable to meet the increased domestic demand on services, (Ramady, 2010), and finally, because of the forecasted capital expenditures' needs of the Kingdom in key areas (Ramady, 2010).

Therefore, privatization is stated as a strategic choice for the Saudi Arabian government, which was defined as: *“the process of transferring the ownership or management of public establishments, projects, and services from the government sector to the private sector”* (Akoum, 2009: 428). According to the Supreme Economic Council reports (SEC, 2012), it aimed to achieve the following eight objectives:

- 1) Improving the efficiency of the national economy.
- 2) Encouraging private sector investment.
- 3) Enlarging the ownership of productive assets by Saudi citizens.
- 4) Encouraging domestic and foreign capital to invest locally.
- 5) Increasing employment opportunities.
- 6) Providing services to citizens and investors in a timely and cost-efficient manner.
- 7) Rationalizing public expenditure and reducing the burden on the government budget.
- 8) Increasing government revenues from returns on participation in activities to be transferred to the private sector, and from financing compensation obtained.

Up till now, several institutions have been privatized such as: Saudi ports services; 30% of Saudi telecoms; and several ancillary services of the national Saudi airline company (Hertog, 2010). Further explanation of the role of the private sector in the Saudi economy will be provided in Section 2.4.

## 2. Saudization

*Saudization*, i.e. the Saudi Government's job localization programme, has been discussed for several decades but was not validated until the sixth five-year development plan (1995-2000), which called for economic diversification and the creation of new jobs for Saudi individuals, as is stated in its fourth objective to “*replace non-Saudi citizens with the appropriate Saudi Arabian workers*” (MOEP, 2013).

The saudization policy has been strongly implemented by the government to achieve three main goals: 1) reduce and reverse the country's over-reliance on an expatriate workforce, 2) increase employment for Saudi nationals across all sectors of the domestic economy to minimize the rate of unemployment in the Kingdom, and 3) recapture and reinvest income which would otherwise have flowed overseas as remittances to foreign workers' home countries (Sadi and Al-Buraey, 2009; Ramady, 2010).

The focus of the saudization programme is particularly on the youth, and the government relies on the private sector to participate in this programme. At least 25% of jobs were targeted to be replaced by Saudi citizens in the year 2002 in the private sector (Arab News, 2001). However, as the percentage of Saudi workers increased, the number of non-Saudi manpower increased as well (see Table 2.2). Perhaps that is because private companies and organizations rely on foreign experts for several reasons, such as: a) relatively high cost of Saudi manpower; b) social and cultural perspectives; c) expatriate workers are easier to control; and, d) inadequate qualifications of Saudi workers (Ramady, 2010). For example, a survey study by Sadi and Al-Buraey (2009) showed that

saudization is implemented forcibly rather than reasoning and encouragement, and the policy was found to be successful in the public sector but relatively unsuccessful in the private sector.

**Table 2.2: Labour Force in Private Sector\***

<i>Labor Years</i>	<i>Saudis</i>		<i>Non-Saudis</i>		<i>Total</i>
	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>	
2009	681481	9.9%	6214067	90.1%	6895548
2010	724655	10.4%	6266545	89.6%	6991200
2011	844476	10.85%	6937020	89.15%	7781496
2012	1134633	13.4%	7352900	86.6%	8487533

\*Source: SAMA statistics, 2013

Several solutions have been suggested to make saudization an effective policy and increase private sector demand and employment of Saudi workers (Looney, 2004; Ramady, 2010):

1. Develop new employment opportunities rather than replacing foreign workers with local workers to accumulate a growing national workforce.
2. Enhance the capital of Saudis and the attainment of skills that are valuable to the private sector through education and training.
3. Facilitate the adoption of new technologies and the accumulation of capital by raising national workers' productivity.
4. Pay more attention to the benefits associated with the programme, as with saudization remittances to foreign countries would be spent domestically.

## **2.4 Market Structure**

The Saudi Arabian market structure consists of several activities and organizations that are expressed through different investments. The next two sections will emphasize activities and investments in (local and foreign) markets as follows.

### 2.4.1 Local Market Investments

The Saudi Arabian market, as mentioned earlier, has been gradually led by the private sector since mid-November 2002, as the government moved to progressively “disengage” from the economy and let the private sector undertake a greater share of the economic transformation (to privatization), through the opening up of 20 sub-business sectors to private enterprise (Saravia, 2002). This justifies the small percentage of public investments in projects, such as: transport and communication (3%); and municipal services (4%), compared to the private sector (see Table 2.3), although government expenditure has rapidly increased in the past ten years to reach \$219,000 million in the year 2013 (SAMA, 2013).

**Table 2.3: Investments in Local Market\***

<i>Investments by sector</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
Private investment	58,872	54,843	56,766	58,627	63,877
Public investment	22,843	23,355	33,915	44,067	41,397
Oil-sector investments	14,791	12,363	13,080	14,191	14,469
Total	96,506	90,561	103,761	116,885	119,743

\*Source: MOEP statistics 2013 in million dollars

Consequently, the local market has witnessed a huge leap in the number of private companies and in the diversity of both its ownership and sectors to which it belongs. There are several types of ownership in the Saudi market. Perhaps the most common are: corporation; general or limited partnership; professional that might take a sole proprietorship; and foreign companies (MOCI, 2013). Since family is a crucial base of the Saudi society, up to 2000 the trend was to start family companies in terms of General partnership, limited partnership, or sole proprietorship, where little attention was paid to corporations (such as joint stock). Families opened businesses to allow their members to

participate and function as a social welfare safety net, while the family enjoyed a sense of corporate identity (Metz, 1992). This is in agreement with the statistics of the Saudi Ministry of Commerce and Industry (2013), where until 2000 there were 5400 Companies listed either as General partnership, limited partnership, or sole proprietorship ventures and only 20 corporation companies were established and registered in the list of Saudi companies. The overall legal structure of companies operating in the Saudi Arabian local market is either owned totally by Saudi citizens (i.e., limited liability), non-Saudis (i.e., joint liability), or foreign investors (i.e., joint stock). The number of these companies has increased progressively in the last three years to reach a number of 8,783 companies in 2012 with a cumulative capital of \$46,563 million (see Table 2.4).

**Table 2.4: Number and Capital of Legal Structure Companies\***

<i>Type of companies</i>	<i>2010</i>		<i>2011</i>		<i>2012</i>	
	<i>Number</i>	<i>Capital</i>	<i>Number</i>	<i>Capital</i>	<i>Number</i>	<i>Capital</i>
Joint stock companies	361	17,661	403	11,599.2	455	31,373
Limited liability partnerships	5,713	4,151	6,412	5,766.51	7,712	1,500
Joint-liability partnership	199	9.1	393	15.31	489	17.4
Mixed-liability partnerships	94	19.3	152	1.6	127	1.6
Total	6,367	21,840.4	7,360	17,382.62	8,783	46,563

\* Source: SAMA national account statistics, 2013; MOCI reports and statistics, 2013 in million dollars

At present, there are more than one hundred and forty Saudi companies with shares worth almost \$1 billion in the Saudi stock market (Tadawul, 2013). Following the announcement by the CMA (Capital Market Authority) in 2007, the Saudi Stock Exchange (Tadawul) has re-organized the constituents of its sectors to fifteen different businesses. These businesses (see Table 2.5), in consistence with the JCCI (Jeddah Chamber of Commerce and Industry), were grouped under three main sectors: industrial (481 companies), commercial (539 companies) and service (985 companies), knowing that, some of the companies were

family owned that converted to corporations, such as companies in the retail and agriculture sectors.

**Table 2.5: Main and Sub-Sectors**

<i>Sectors (JCCI)</i>	<i>Industrial</i>	<i>Commercial</i>	<i>Services</i>
<i>Sectors (Tadawul)</i>			
Agriculture & Food Industries	√		
Banks & Financial Services			√
Building & Construction			√
Cement	√		
Energy & Utilities			√
Hotel & Tourism			√
Industrial Investment	√		
Insurance			√
Media & Publishing			√
Multi Investment	√		
Petrochemical Industries		√	
Real Estate Development			√
Retail		√	
Telecommunication & Information Technology			√
Transport			√

## 2.4.2 Foreign Market Investments

On the foreign investment level, the Saudi government, as a member of the WTO (world trade organization), has acted to bring into prominence its international image by opening up opportunities for foreign investment in two directions: the first is by providing the necessary facilities for foreign companies to invest in the Kingdom of Saudi Arabia (reached \$186,850 million in 2011) and the second is by encouraging Saudi companies to invest in foreign markets, which reached \$29,958 million in 2011 (SAMA, 2013). Hence, the Saudi Arabian market for foreign investors is a highly promising one. According to the report of the 2nd Annual Saudi Securities Forum which was held in the Riyadh Capital in 2013, the importance of foreign fund flow to the Kingdom was stressed and the Saudi foreign market was characterized by top quality regulations and supervisions. Several opportunities are provided for foreign investors in the Kingdom, subject to approval by

both the Ministry of Commerce and Industry and the SAGIA (the Saudi Arabian General Investment Authority). Mead (2000) suggested examples of these opportunities:

1. Appointing a Saudi agent or distributor for the foreign company.
2. Opening a branch that is wholly owned by the foreign company, when the foreign company is engaged in a business contract with the government, knowing that if the foreign company has multiple contracts with the Saudi government, it can obtain a representative office license and establish its own liaison office.
3. Franchising contracts.
4. Joint ventures, which are set up as limited liability partnerships that require minimum amounts of capital investments but cannot offer shares to the public.

Further, the Kingdom of Saudi Arabia captures an important global presence in terms of its imports and exports. According to the Ministry of Economy and Planning statistics (2013), the total amount of exports in 2010 were \$240 billion, where oil exports accounted for 85% and non-oil exports accounted for 15% of the total exports. Asia represents 55% of the Saudi export market, followed by 16% for North America, and 15% for Europe. As an import market (\$97 billion), Europe represents 36% of Saudi targeted markets, followed by 27% for Asia, and 16% for North America. Specifically, the government was interested in encouraging the trade in non-oil products (see Table 2.6) where the total amount of exports in the Saudi market reached \$8650 million and the total amount of imports reached \$24422 million recently (MOEP, 2013).

**Table 2.6: Non-oil Exports and Imports**

<i>Exports</i>	<i>Percentage</i>	<i>Imports</i>	<i>Percentage</i>
Petrochemicals	33%	Machinery and electrical	27%
Plastic	33%	Transportation equipment	16%
Food products	8%	Food products	15%
Re-exported goods	11%	Base metals and its products	14%
Other exports	15%	Other imports	28%

### 2.4.3 Problematic Investments

The Kingdom of Saudi Arabia is in the middle of a development boom that investments in many projects are increasing in different key sectors according to local economic indicators, for example, SAGIA (Saudi Arabian general investment authority) announced that the total amount of foreign investment in Saudi Arabia has reached more than \$147 billion, and in 2011 the value of the approved investment projects exceeded \$66 billion with an increase of 6% from the year 2010 (SSPC, 2012).

This huge spending was associated with success in many projects and failure in others, in both governmental and private sectors. On the one hand, the core element of project success is not the amount spent but meeting several requirements of budgets and deadlines, which is not limited to one sector but to all businesses in the Saudi market. On the other hand, the total estimated size of failed projects in the last three to four years exceeded a billion dollars, which induces the emergence of many negative effects on the Saudi socio-economic levels that affect the development and delivery of services to Saudi citizens (SSPC, 2012). For example, recently, a scientific paper entitled “*stalled government projects, its causes and ways to reduce it*”, presented at the First Construction Contracts Forum (2013) in the capital Riyadh revealed that the percentage of stalled government projects is 33.47% with annual costs in excess of 40 billion Saudi Riyals, which is almost \$11 billion (Al-Madina, 2013).

Many reasons were suggested for the large amount of money waste, projects’ deterioration, and failure in an economy that is still making its way to prosperity. For



example, Al-Babtain (Al-Madina, 2013) suggested three stages for project failure in the Saudi Arabian market:

- The first stage is the lack of planning and absence of visibility in the design of the project in the initial phase such as the lack of preparing project documents, the shortages in the study of the nature of the project in terms of location and implementation requirements, the lack of clarity of the requirements for those who apply for the competition, and the short period of time available to estimate the value of the project pricing by competitors.
- The second stage is what he named as “the delivery phase” where the project is to be given to a contractor to operate and manage. The main focus is on the financial analysis of the bidders (contractors) without considering their technical capabilities, which results in that the contractor with the least bid wins managing and operating the project. In addition, some contractors who win the bid might be deficient in their financial or technical capabilities.
- The final stage is the weakness in the efficient supervision of governmental entities that are in charge of the project in the implementation phase. For example, the poor skills of some contractors in acquiring high quality material or labour, absence of a project manager office on site, the weakness in coordination between beneficiary institutions and what is really established, a poor information base, frequent change of decisions during the implementation of project, and the expansion of a contract with subcontractors without the consent of the owner of the project contribute to badly managed projects.

Other reasons for project failure were linked to the nature of the Saudi Arabian market, for example Tuncalp (1988) cited four features of the Saudi market:

1. The Saudi market is a complex one as it consists of several sectors and is distributed in different regions.

2. Decisions are mainly made by the owners, who base their actions on either experience or perceptions.
3. Decisions are made on a rather ad hoc basis, and problems are solved as they approach emergency proportions.
4. The deep sense of fatalism and a strong belief in faith diminish the need for long-term planning.

Further, in its quest for economic progress, the country faces managerial and social challenges, which have caused duality in thinking and practice between the macro and micro levels in Saudi organisational settings. On one hand, organisational structures in Saudi are influenced by conservative traditions such as Islamic values, particularistic tribal family orientations, and inheritance of the autocratic ottoman system. On the other hand, at the top level, the government recognizes that in order to compete in the global economy, it must modernize its management practices in terms of industrialization, western contact, and the use of modern technology, which would strengthen the influence of more pragmatic, universalistic values (Assad, 2002).

Cultural values influence the nature of the administrative structure behaviour in organizations, therefore current problems in organizations can best be understood in the context of on-going encounters between forces of change and forces of stability, which could be explained, as Assad (2002) recommended, in terms of:

- 1) Many administrative laws and regulations have been established, but sometimes they are not applied. For example, employment and promotion systems according to qualifications and merit have been designed, but hiring and rewarding are still influenced by social ties, personal relations, and family position.

- 2) Saudi cultural values emphasize diligence and competence in work but the shortfall in worker performance in large modern organizations in the country is apparently a result of the shortfalls in managerial training. Therefore, the government is engaged in an intensive effort to maximize managerial effectiveness and there is much concern with improving the quality of worker performance in pursuing development programmes.

Additional causes suggested by participants of the Saudi Stumbled Projects Conference (2012) that could be summarized in Table 2.7 were as follows:

**Table 2.7: Investor and Governmental Roles in Project Failure**

<i>Causes of project failure</i>	<i>Investor role</i>	<i>Government role</i>
Lack of identifying the need for the project	√	
Poor preparation and planning of project	√	
Poor performance	√	
Delays of needed procedures	√	√
Ambiguity of roles	√	√
Lack of coordination between different agencies		√

## **2.5 Managers' Characteristics**

In Saudi Arabia, project managers are expected to possess several qualifications and skills. For example, in different advertisements published either on-line or in local newspapers project managers are expected to be fluent in written and spoken English, have a relevant degree such as Civil Engineering, have of minimum 5 years job experience, and have management skills in terms of developing project plans, setting high standards, establishing demanding, but achievable, goals, coordinating projects, inspiring people to do the best job possible, completing projects on time and within the budget, managing project team activities, monitoring performance, and giving helpful feedback (Al-Riyadh, 2013; BAYT International, 2013). To put these requirements in perspective, the educational and cultural environments are briefly summarised below.

### 2.5.1 Educational Trends

Education in the Kingdom of Saudi Arabia has gone through several phases of development, from what was called “*Kuttab*s” to teach religion and Arabic language (Al-Sadan, 2000; Lipsky, 1959) with only a handful of students, to a present total student population of more than 6 million covering all phases of formal education as indicated in Table 2.8. These are shared between 25 public universities, 22 private colleges and universities, public, private, and international schools.

**Table 2.8: Educational Status and Gender\***

<i>Educational Status</i>	<i>Frequency</i>		
	<i>Male</i>	<i>Female</i>	<i>Total</i>
Primary	1,737,661	1,698,598	3,436,259
Intermediate	792,603	786,796	1,579,399
High school	787,838	688,855	1,476,693
Subtotal	331,810,2	317,424,9	649,235,1
Technical education	115,948	-	115,948
Diploma	2,801	1,567	4,368
Bachelor degree	39,894	61,797	101,691
Masters	2,497	1,520	4,017
PhD	344	106	450
Subtotal	161,484	649,90	226,474
Total	3,479,586	3,239,239	6,718,825

\*Source: MOHE, 2013; MOEP, 2013; SAMA, 2013

This is in agreement with the Government’s large investment in the educational sector in order to, as stated in the ninth five-year development plan, “*enhance human development*” (MOEP, 2013).

However, despite the efforts being carried out in this direction, the education sector still faces several challenges. One of the biggest shortcomings that economists pointed out is the failure of educational outputs to meet the demands of the modern industry (Vivano, 2003). For example, At-Twairji and Al-Ghamdi (1997) found out that most Saudi managers have built their careers through work experience and they value people with

experience the most. Their findings indicated that experience, connection, legitimacy, and references were the sources of power for Saudi managers with ranging degrees. Further, estimates of unemployed Saudis have reached almost 10.5% in 2009 (MOEP, 2013) and the Saudi government has hired more than 6 million foreign workers, which form almost half of the Kingdom's working age population, to work as physicians, engineers, scientific researchers and corporate managers (Vivano, 2003).

This dilemma occurred because, up until now, higher education graduates in the Kingdom are mostly qualified to work in the public but not the private sector (Baki, 2004). The estimates of the Ministry of Economy and Planning (2013) illustrated that, non-Saudi workers comprised 90% of the total workforce in private sectors compared to less than 10% of Saudis employed in 2009. In order to resolve this dilemma, there is a massive need to change the core of education to match up to the requirements of the private sector, which will increase both research and development as well as job opportunities provided by the private sector and will lead to the hiring of more Saudis in the private market (Looney, 2004).

The Saudi Arabian government has focused more on the type and quality of education in order to develop the right skills to match the demands of the domestic labour market, and to achieve targeted goals such as saudization to promote national economy, by adopting several procedures. For example, with regard to the field of management, the Ministry of Education introduced Administrative Science in addition to natural and Arabic language

sciences as one of the majors that students in the tenth/eleventh grade in public and private schools can choose from (MOE, 2013).

Additionally, public colleges, universities, and private higher educational institutions offer different degrees in management (MOHE, 2013). Another example, which illustrates the Government's concern with improving specific leadership skills such as persuasion, negotiation, team building or communication, is that the Government has decided to send Saudi managers from leading companies for training at business schools abroad. The aim is to develop global leaders through high impact executive education, which refers to academic programmes at graduate-level worldwide business schools for executives, business leaders, and functional managers (Arab News, 2013).

### **2.5.2 Cultural Trends**

Culture could be defined as a set of ideas, symbols, actions, morals, and viewpoints that are joint and shared by a human group (Banks, 1997), which for the Saudi managers are influenced by several aspects. For example, the geographical distribution of regions and cities across the Kingdom is such that some cities are located on the shores of the Red Sea or the Arabian Gulf while some are close to the desert. Accordingly, there is a disparity in the Saudi environment between life in the coastal cities and the desert life which has played a major part in forming the Saudi culture, as those living near the sea have had more exposure to other communities and thus have developed a more broad-based outlook than those living more inland (Metz, 1992). In addition, Saudi culture is formed by other

factors such as: Islamic beliefs, tradition and modernization, and family values, as explained below.

### **1. Islamic Beliefs**

The influence of Islam in shaping Saudi Arabian culture has overridden the effect of other factors. This is obvious from the symbolic monogram on the Saudi flag, its legal system rooted in Islamic principles and the general lifestyle of the Saudis (Al-Shahri, 2002). Moreover, the Saudi population, despite the geographical distribution, is characterized by a high degree of cultural homogeneity reflected in the written and spoken Arabic language which is common across Saudi Arabia and in the affinity to Sunni Islam (Metz, 1992). For example, when Arabs meet their countryman for the first time they usually attempt to establish each other's family identity, as Islam is considered an important source for this high collectivism orientation (Bjerke and Al-Meer, 1993).

Saudi Arabia is a Muslim country governed by the principles of Islamic law (Shari'ah). Therefore, many socio-cultural and economic implications have to be acceptable and permitted by Islamic law (Choudhury and Al-Sakran, 2001). On the level of institutions, several banks, for example, have converted totally or partially to Islamic banking; where services are provided free of interest (*riba*) such as the ones listed by Kettell (2011): Al-Rajhi Bank (100%), Bank Al-Jazira (100%), Saudi British Bank (34.90%), Banque Saudi Fransi (25.27%), and the National Commercial Bank (24.93%).

On the level of individuals' behaviour and attitudes within their institutions, there is a social distance between superiors and subordinates, which could be attributed to the

Muslim belief about authority in Islamic societies; also, Arab traditions recognize status hierarchy. Saudi managers as Muslims are required to co-operate with other Muslims and to share one another's sorrows and happiness. They are also required to offer non-Muslim groups the maximum social and cultural rights that can be accorded them on the basis of common humanitarian bonds. Saudi managers are seen as caring and nurturing with less ambition for achievement and financial reward (Bjerke and Al-Meer, 1993).

## **2. Tradition and Modernization**

A closer examination of the Saudi culture shows that it has gone through several rapid phases of changes. More than 80 years ago, Saudis were living in an isolated and undeveloped atmosphere that changed dramatically after the discovery of oil in 1932 into a high technology consumers society, seeking universal education and replacing traditional institutions with new ones (Al-Akeel, 1992).

Life in Saudi Arabia would have changed even without the discovery of oil, but certainly it would have been at a slower pace. In the past, the foundation of people's wealth was measured by their degree of faith, communication between each other and generosity. Now, it is a different way of life: education, travel, communication and contact with foreigners have all made Saudi Arabia a full partner in the modern world (Lunde et al., 1995). Modernization has affected how Saudis live; it can be seen in the huge shopping centres, the modern government buildings and houses, the five and seven stars hotels, various luxury restaurants. It even influenced Saudis' choice to prefer working in larger organizations (Bjerke and Al-Meer, 1993).



For example, prior to the discovery of oil, people in Saudi Arabia valued hard work and productive efforts, but this image has changed since the beginning of the oil boom, as the increase in the income of the country made the ruler more capable of distributing wealth among citizens through scholarships, land grants, interest-free property loans, and free public education and health care. Moreover, it facilitated the importing of labour from foreign countries to perform menial tasks, which have all resulted in replacing traditional values of hard work and productive efforts into schemes of leisure, apathy, and contempt for manual work (Assad, 2002).

Despite the tremendous changes in the manifest culture, there is no corresponding change in the intrinsic culture, as Saudis have adopted very few additional habits from foreign cultures, which have resulted in the idea that Saudi Arabia is a man's world and that man's commitment to work serves as an indicator of his status and of being a responsible social actor. Therefore, Saudi managers are highly committed to work as they are very loyal to their organizations and would continue working even if they had enough money to live comfortably without doing so (Ali and Al-Shakhis, 1989; Bjerke and Al-Meer, 1993). When it comes to values, norms, behaviour, and the attitude of Saudis, usually individuals show a moderate attitude towards modernity, as they are neither too conservative nor too liberal because they try to preserve some of the traditional values that would strengthen and sustain the Saudi society (Al-Akeel, 1992).

Saudis nowadays believe that tradition and modernity can coexist and they are looking forward to improving their future by using and applying the new technology but not at the

cost of their beliefs and morals, or even losing what they already have in terms of family closeness, the respect for their customs and traditions, the pride in the richness of their language, and the sustaining strength of their religion. This has been embodied in the belief, for example, that women are capable of playing a more active role in society and in the development of their country but within the context of Islam, i.e. without neglecting their roles as wives and mothers (Lunde et al., 1995). Several aspects such as education, female employment, and the breakdown of the extended family system has improved the women's role in the family in terms of their self-esteem and it has given them a stronger position in the family's decision making (Al-Khateeb, 1998). Therefore, since the 1990's many women have been encouraged to take up jobs traditionally perceived to be men's, and established respectable positions outside the family (Metz, 1992).

Traditional values such as the importance of personal relationships and the preference for individuals from influential tribes have offered resistance to the new trends causing Saudi managers to act contrary to legal or rational principles, which has reflected in a "lower level of development" rather than choice (Assad, 2002). This conflict between the dual forces that pulls managers in opposite directions, tradition and modernity have caused managers to suffer from a crisis in direction and identity (Ali, 1990) as the use of more traditional organizing practices could be viewed as an informal choice rather than the result of the ignorance of bureaucratic principles (Al-Aiban and Pearce 1993).

### **3. Family Values**

Family and work are the most important characteristics in a Saudi manager's life, as the family takes precedence over the individual, and any member of the society is identified by his/her family, which results in taking pride for being a member of an extended family and makes the individual's duty and obligation as first and foremost to the family (Ali and Al-Shakhis, 1989). Family values have contributed to the cultural homogeneity of the Kingdom as the Saudis' appreciation of values and attitudes exemplified in the family which reverts to the Arabian tribal society, particularly, relations within the family itself and relationships of the family with the rest of society in terms of neighbours and friendships.

Traditionally, the Saudi society is structured on an extended family base; yet, the approach towards a nuclear family has become more favourable in the society (Al-Akeel, 1992). Marriage and raising children are still very highly valued by both genders in the Saudi society; it is believed that motherhood is the most important role in the Saudi woman's life (Al-Khateeb, 1998). Therefore, Saudi managers rely on family and friendship ties for getting things done within their organisation as they live in a society where family and friendship remain important and influential factors in the functioning of institutions and groups (Bjerke and Al-Meer, 1993).

While the family forms the most important social institution in Saudi Arabia, its structure matches the structure of tribal roots in terms of the appearance of the father as the authoritarian figure at the top of a hierarchy that is based on age and gender, as he is seen

more independent and controlling one's emotions as well as a keenness to support other family members and take responsibility for their errors as well (Metz, 1992). Moreover, the family's image and prestige in the community is usually strengthened if its members had work and assumed respected positions, where the image of a father (as protective and courageous) is necessary to enhance a manager's successful role in the organisation and community (Ali and Al-Shakhis, 1989).

Relations in organisations are built within the same cultural and religious values that permeate the society as a whole. Saudi managers are more satisfied with directive and persuasive superior as they like seeing themselves within the father image as benevolent decision makers, where emotional resistance to change such as loyalty to employer is seen as a virtue and employees fear to disagree with their boss. Therefore a manager is the one who builds a reputation for being honest, wise, generous and committed to his extended family (Ali and Al-Shakhis, 1989). Because of this father image, they believe that they can make decisions autocratically and paternalistically, and company rules should not be broken, therefore, conflicts in organisations are undesirable, but if they are forced to be involved, they resolve disagreements by authoritarian behaviour (Bjerke and Al-Meer, 1993).

Further, Saudi Arabia is a country where there is emphasis on concern for others and a friendly relationship among people (Bjerke and Al-Meer, 1993). The social structure, social values, and patterns of relationship all centre on the primary group in terms of the family, kin, tribe, and friends, where the primary loyalty and responsibility of the

individual is directly towards others (Assad, 2002). That is why managers are essentially motivated by social needs, especially family affairs, rather than by purely economic incentives, which explains Saudi managers tend to have a high uncertainty avoidance orientation (Bjerke and Al-Meer, 1993). In other words, the issue is not whether or not Saudis can fulfil their economic needs, but, it is whether they can find meanings in work that provide them with feelings of pride and would assist family relations and social cohesiveness (Ali and Al-Shakhis, 1989).

## **2.6 Summary**

This chapter has highlighted and emphasized the socio-economic and cultural aspects that pertain to the business environment in Saudi Arabia in order to put the study of corporate project decision making into its proper context. The educational and social backgrounds described in this chapter are taken into account in the design and conduct of this study, particularly the definition and operationalization of the research variables and primary data collection as will be explained in more detail later in Chapter Five.

The next two chapters will present a critical review of the relevant literature including laboratory based experiments and case studies based on real life cases that were accomplished within the area of the current research respectively as follows.

## **Chapter Three**

### **Escalation/De-Escalation of Capital Projects Decisions: A Theoretical Perspective**

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#### **3.1 Introduction**

The literature on the escalation/de-escalation of commitment in capital project decisions consists largely of a plethora of theoretical models and laboratory studies that tried to explain and rationalize managers' choices. Each theory includes several factors that stem from and are consistent with the concepts and principles of the theory being considered. There is a noticeable lack of studies based on real life organisations and this is relatively due to the complexity and sensitivity of this particular topic, which makes it extremely difficult for researchers to gain access to primary data.

This chapter reviews existing theoretical models to explain managers' escalation/de-escalation decisions as follows: capital investment projects management (Section 3.2), the definition of both the escalation and de-escalation of commitment (Section 3.3), a review of theoretical models to explain the occurrence of the phenomenon (Section 3.4), focusing on the four more considered and applicable theories, and discussing the effectiveness of the theoretical models to inform the current study (Section 3.5). Section 3.6 concludes this chapter.

#### **3.2 Managing Capital Investment Projects**

The importance of applying project management techniques is, as explained by Kerzner (2006), dictated by the need to produce several benefits to both the project and the

company through: a) measuring plan accomplishment to identify early problems regarding project implementation or achieving objectives, b) specifying functional responsibilities, and c) minimizing the need for continuous reporting and identify time limits. However, there are more at stake in terms of benefits/losses when the project is a capital investment one given the amounts of capital and risks involved, hence proper project management is a fundamental requirement (Scott-Young and Samson, 2008).

### **3.2.1 Project Management**

Project management (PM) can be defined as: “*the application of knowledge, skills, tools and techniques to project activities to meet project requirements*” (PMBOK, 2008). It differs from other management principles as suggested by Haynes (2009) in two significant issues: first, it focuses on an undertaken project with predetermined life duration, and second, it works on assigning the necessary resources to needed projects to meet objectives throughout the lifecycle of a project. Therefore, the purpose of PM is to anticipate as many of threats and obstacles as possible in addition to plan, organise and control actions so that projects are completed successfully in spite of all difficulties (Dennis, 2007). As PM focuses mainly on the project (Haynes, 2009), it deals with the following aspects regarding the project: a) determining the cost and significance of the project, b) identifying the type and time of the delivered outcome of the project, and c) establishing the roles, responsibilities of those charged with directing and managing the project from start to completion (Roberts, 2007).

Project management's definition, role, and purpose have gone through several critical stages of development (i.e., Morris, 1994; Kwak, 2005; Cleland and Gareis, 2006; Kerzner, 2006; Dennis, 2007). For example, Kerzner (2006) linked the historical development of project management to four aspects: the type of projects, companies' sub-business that implemented PM systems, unstable economy, and the growing time span between project initiation and completion. Kerzner (2006) pointed out that up to the 1960s aerospace and defence industries in the USA have suffered from cost overruns in excess of 200%-300%, which induced them to apply PM systems on almost all their projects. From the mid-60s up to the 70s and 80s more governmental companies applied PM systems to make sure that their cash investment is not wasted, and as companies carried out more capital projects in an increasingly unstable economy, even private companies began operating PM systems. By the 1990s, PM was seen as an essential need in all private and governmental companies as an important tool to achieve business objectives.

Linking the development of PM to the development of both computer and management sciences, Dennis (2007) gave a detailed description, as he suggested that the more applications computers had the more managers became independent from IT experts and PM became a more respected profession (see Table 3.1). Within all the phases of development, PM aims to organize and optimize the required resources such as financial facilities; equipment; and skills to successfully complete the project (Haynes, 2009). Project management systems are constrained, in varying degrees, by time, costs, and performance in addition to good customer relationship if the project is accomplished to an outside customer, which will influence the progress and outcome of the project (Steffan,



2008; Kerzner, 2006). Therefore, the project is considered to be successful, in brief, when it is completed within the time; budgeted amount; and performance level (Scott-Young and Samson, 2008; Kloppenborg and Opfer, 2002).

**Table 3.1: Development of PM within Different Time Periods and Features\***

<i>Time period</i>	<i>Period features</i>
Pre-1900	<ul style="list-style-type: none"> <li>-Wonderful projects and cheap labour.</li> <li>-Management organization structures seen in churches and military.</li> <li>-No management scientists or project management profession.</li> </ul>
1900-1949	<ul style="list-style-type: none"> <li>-Emergence of management science.</li> <li>-People begin to study work and people at work.</li> <li>-Early development of critical path networks.</li> </ul>
1950-1969	<ul style="list-style-type: none"> <li>-US defence projects exploit critical path network analysis.</li> <li>-Mainframe computers can run project management software.</li> <li>-Project management becomes a recognized profession.</li> <li>-More concern for people at work.</li> </ul>
1970-1979	<ul style="list-style-type: none"> <li>-Project management has two meanings:               <ol style="list-style-type: none"> <li>1. Industrial project management; 2. IT project management.</li> </ol> </li> <li>-Creation of professional association and more project management software.</li> <li>-Legislation for health and safety and anti-discrimination laws introduced.</li> </ul>
1980-1989	<ul style="list-style-type: none"> <li>-Desktop computers can run powerful project management software.</li> <li>-Wider acceptance of project management as a profession.</li> <li>-Computers provide better graphics with colour.</li> <li>-Managers less dependent on IT experts.</li> <li>-Computers cannot run arrow networks and precedence becomes the norm.</li> </ul>
1990-2000+	<ul style="list-style-type: none"> <li>-PCs and notebooks can run all applications.</li> <li>-Communication by satellite and the internet.</li> <li>-More interest in project risk.</li> <li>-IT and industrial project management no longer considered differently.</li> <li>-Project management is a respected profession, with flourishing associations.</li> </ul>

\*Table adapted from Dennis (2007)

Munns and Bjeirmi (1996) suggested three elements to be considered for project success: a) the role of project management must be placed within the context of a wider project besides other external criteria and long-term expectations, b) project evaluation should not only focus on the implementation processes but also the economic and financial performance, and c) initially selecting the right project and screening out potentially unsuccessful projects will be more important to ensuring total project success as project management would enhance its attainment. These find resonance in Hyväri's (2006) study

in Finland where successful projects were found to depend on several items such as leadership skills, the project size, determining the mission of the project in the identification phase, and troubleshooting in the controlling phase of the project.

Several elements influence a project's success/failure from its initiation through to its successful completion or termination if it fails. For example Danielson and Scott (2006) suggested that most small companies would reschedule their capital investments waiting for internally produced cash. In the USA, the telecommunications business' direction and level of investment is determined by the capital expenditures, as in 2007 both the wire-line and wireless capital expenditures reached \$64 billion (Celentano, 2008). Similarly, Nini et al. (2009) found that US public companies that faced restrictions on financing their investments experienced a 15-20% decline in their investment decisions than those that did not face such restrictions. In Germany, Bayer (2008) found evidence that financing would have an influence on making investment decisions. Another reason for initiating an investment project is to achieve a company's strategic goals. For example, Alkaraan and Northcott's (2007) found that 55.4% of respondents agreed that investment decisions were originated from the corporate strategy in their companies. These goals should be set rationally with the aim of achieving them, which means that goals should be precise, evaluable, approachable, and motivating (Edvardsson and Hansson, 2005). Companies set goals either to increase the company's revenues (Gebauer et al., 2006), to dominate the offered service to customers in the market (Carneiro et al., 2011), to attain a high level of customer satisfaction with the aim of outperforming competitors (Wong, 2002), or to improve the quality of the presented service (Robinson, 2009).

The first problem managers face after initiating and implementing the project is the difference between the set budget and the final cost of the completed project. For example, in the UK, a survey was conducted by the Tax Payers' Alliance (TPA) in 2009 regarding the government's overspending on capital projects revealed that 32% of projects suffered from budget overrun (TPA, 2009). In the USA, a survey in 2005 showed that over 20% of big rail and road projects were over budgeted, where one in eight were significantly over cost (The Economist, 2005). In Korea, the average final cost at completion has increased by 122.4% compared to the original budgeted costs in mega projects, while in medium sized projects the average cost increase was 32.5% (Han et al., 2009). In the USA, Flyvberg et al. (2002) found that 90% of 258 major transportation infrastructures were overspent. More examples demonstrate the increased monetary amount such as the Denver \$5 billion airport that was 200% overspent (Szyliowicz and Goetz, 1995), and the 800 million Danish Kroner Oresund Bridge, which was 68% overspent (Flyvberg et al., 2003).

One of the reasons behind budget overrun, as explained in the literature, might be due to time delay because when projects exceed their estimated time, they are either expanded or rushed to completion, which causes additional costs to occur (Might and Fischer, 1985; Calisir and Gumussoy, 2005; Sambasivan and Soon, 2007). For example, in Turkey, Calisir and Gumussoy (2005) found that the average projects that exceeded budgets were 19% and the schedule overrun was 49% of projects. In Malaysia, Sambasivan and Soon (2007) found that the effects of delay in the construction projects were time overrun (82%) and cost overrun (78%). In Korea, mega projects suffered from huge overruns as well as an average of 3.6 years of delay (Han et al., 2009). In the USA, it is found that 52.7% of

corporate software development projects are costing over their estimated schedules and budgets (Standish Group International, 1994). In Saudi Arabia, Al-Sultan (1987) found that 70% of public projects suffered time overrun, while Assaf and Al-Hejji (2006) found that 70% of the construction projects faced time delays.

Once projects exceed their initial budget and time schedule they would be unable to achieve their goals. In New Zealand, a survey of 100 organisations across a broad cross section of industries showed that 70% of the firms have suffered at least one project failure and 50% of these projects failed to consistently achieve their objectives (One News, 2010). In a survey of 1,500 change management executives worldwide in IBM companies indicated that a 59% of projects missed at least achieving one objective or failed entirely (Jørgensen et al., 2008). In the Standish Group report, in 2009, only 32% of all projects have succeeded, 44% were facing problems, and 24% have failed (Wright and Capps, 2010). Projects, when their costs and time are overrun and when their strategic objectives are not met, need to be re-evaluated. Pike (1996), for example, in a serial of studies in the UK found that when the costs of approved projects were over-run; 72% (1975), 82% (1980), 85% (1986), and 92% (1992), it was more likely for these projects to be evaluated. Since these elements would cause projects to face failure (Eden et al., 2005; Standish Group International, 1994). In the UK, a 1994 study of IS development projects in the British public sector estimated that 20% of expenditures were wasted, and a further 30% to 40% did not produce perceivable benefits (Wilcocks, 1994). In 1994, the USA General Accounting Office reported that spending of more than \$200 billion in the previous twelve years had led to a few meaningful returns (Flyvberg et al., 2002).

Failure of the project generates several possibilities for managers. For example, Dilts and Pence (2006) found that when a project faces major changes in the initial expectations, it is certainly to be at risk of being terminated, where project managers would be more aware of the influence of project termination than executives. Wright and Capps (2010) found that 55.4% of respondents, in the USA, have terminated projects in less than 20% of its time and when projects were less than 20% runaway, 71.6% of respondents redirected it. Guan et al. (2002) in a survey in China found that termination decisions for on-going projects were rarely made in time and were generally based on two issues: a) the experience of project managers as well as their top management, and b) a comparison of the project's performance in opposition to the target group of a number of signs. Corbett et al.'s (2007) found that, in the USA, managers' inability to terminate projects in a timely approach have resulted in wasted resources that might have been reallocated to other promising projects. Further, three types of termination scripts were implemented: a) 45% made rapid decisions to exterminate a project without considering the possibility of learning opportunities, b) 72% used an indicative of a concerted effort to acquire sufficient information to know when to terminate or to continue a project, and c) 81% had the tendency to let projects continue when the chances for commercial success were limited.

Another possibility is to continue funding the failing project, i.e., escalation of commitment (Staw and Ross, 1987b; Keil et al., 2000; Delios, 2004; Chakravorty 2009; Korzaan and Morris, 2009). For example, Keil et al. (2000) indicated that 30-40% of problematic IT projects showed some degree of escalation, where Delios et al. (2004) found that managers in Japan have continued 75% of poorly performing projects that had

not made a profit in the earlier five years of operations in joint ventures. Chakravorty (2009) in the USA found in a case study that more monetary resources were added to the failing project for four years before terminating it. In the USA, as well, Korzaan and Morris (2009) found that both personality characteristics of the decision maker as well as the locus of internal control have influenced managers' intention to escalate a failing project.

The position of managers who deal with failing projects might not be influenced by project failure. Lui and Chan (2008) found, for example, that top management noticed that replacing project managers or team members of a failing project would be of no help as it would result in losing the considerable knowledge they have gained from dealing with the project, instead, they decided to limit the tasks of the project manager to one particular area. Contrary, managers' positions would face critical consequence. For example, Dilts and Pence (2006) have found that project managers' occupation could be critically derailed if they have managed a failing project, where executives might feel less threatened. Collins (2001) found in a survey in the USA that 11 out of 48 project managers were replaced during the lifetime of the failed projects. In the USA and Australia, 92.5% of respondents have agreed to some extent that they have left their jobs as project managers when they managed failing projects or performed poorly (Parker and Skitmore, 2005). Wright and Capps (2010) found in a survey in the USA that 68.1% of respondents agreed to replace the project manager, while 31.9% considered educating the project manager, and 63.8% were willing to improve the project manager.

Therefore, managing a project successfully depends on different inter-dependent phases of the project that are linked together in a logical manner, whereas each of the phases could be considered as a key step towards a successful outcome (Young, 2006). These phases will be explained below within the context of capital investment projects.

### **3.2.2 Capital Investment Projects**

The need for understanding how to manage capital projects has grown rapidly as more surveys reveal the amount of problematic capital projects that companies face. For example, a survey by the McKinsey Quarterly group (2007) that examined four types of successful capital investment projects in different companies (acquisitions, maintenance, projects aimed at stimulating growth in existing companies, and efforts aimed at innovation) showed that seniors believed that 17% of the capital projects should be terminated, and 16% should not be financed at all. It is, therefore, essential that project managers understand how capital investment decisions are made if they are aiming to improve their companies' performance (Farragher et al., 1999).

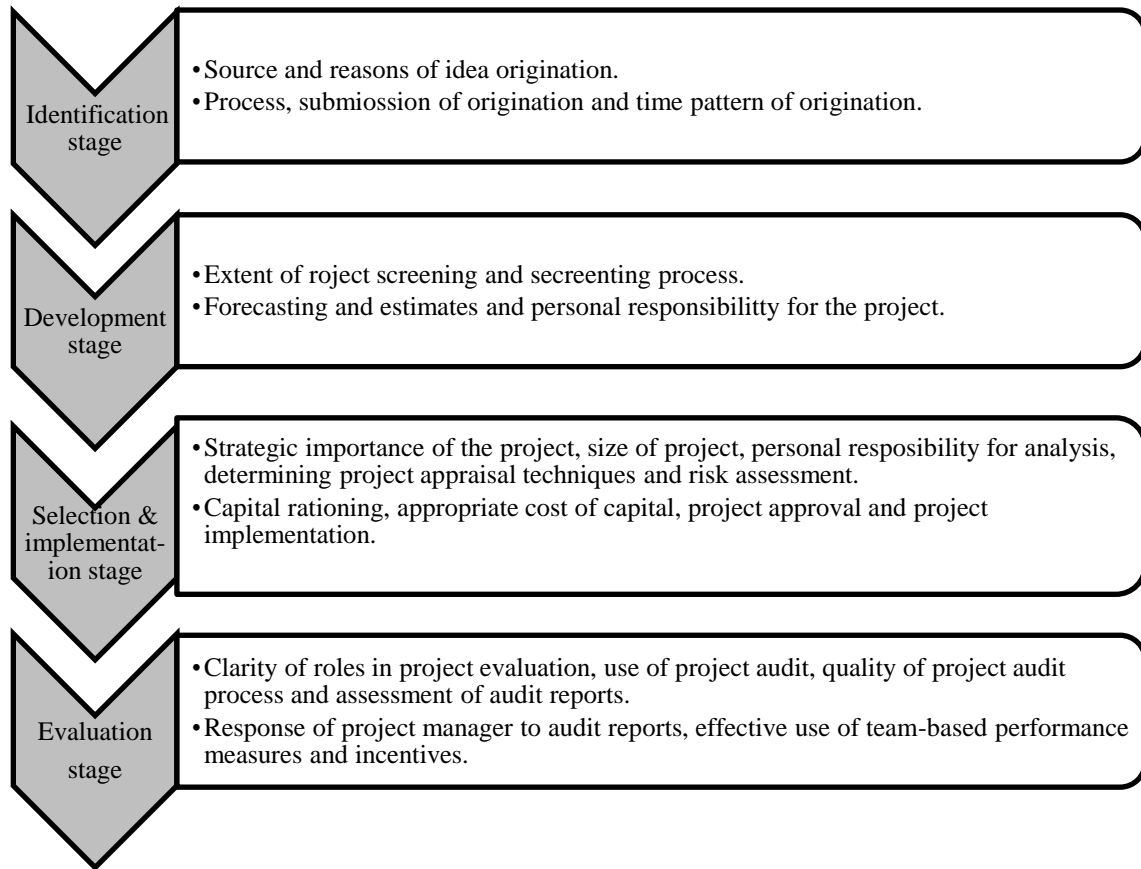
A capital investment project could be defined as a long-term investment project that requires relatively large sums to obtain, develop, improve, and/or maintain a capital asset (Business Dictionary, 2011). Examples of capital projects are: companies' acquisitions and mergers, new facilities investment projects, new product or major product line development, new technology employment, installation of new manufacturing and business processes, employment of advanced manufacturing and business technologies, and significant changes in production capacities (Alkaraan and Northcott, 2007;

Emmanuel et al., 2010). Capital projects are distinguished from other types of project because they are based on projections of future cash flows and they do not fit into the daily operating requirements of the company (Fabozzi et al., 2008). They are surrounded by both quantifiable factors such as risk, and qualitative factors such as uncertainties that influence decision-makers' confidence in project estimates, whereas modifying levels of risk and uncertainty can influence the decision-makers' choice of forms, methods, and procedures for making the investment decision (Alessandri et al., 2004). These projects once made, they are difficult to reverse, which result in a considerable amount of monetary resources being at risk (Emmanuel et al., 2010). Therefore, considering whether or not to invest in newer or additional versions of capital projects at any point in time is a significant managerial decision (Gilbert, 2003).

In this regard, much attention has been given in the management accounting literature to address how capital investment decisions should be and are made, which they refer to as capital budgeting (e.g. Myers, 1974; Neale and Pike, 1992; Kester et al., 1999; Lazaridis, 2004; Prather et al., 2009; Bennouna et al., 2010). Neale and Pike (1992: 254) have defined capital budgeting as the: “*whole process of creating, appraising and implementing capital projects*”. Where several forms of the capital investment decision making were suggested in the literature, regardless of differences in the content of the stages, they mostly agreed that the formal investment decision begins with generating the investment idea and ends with evaluating, monitoring, and measuring the outcome of the decision (Mukherjee and Henderson, 1987; Pike, 1996; Mukherjee and Hingorani, 1999; Klammer et al., 2002; Burns and Walker, 2009; Hall and Millard, 2010).



Of particular, usefulness is the extensive reviews undertaken by Mukherjee and Henderson (1987) and Burns and Walker (2009), of the surveys published on capital investment decisions process covering the period 1959-2007. The resulting four-stage framework from these reviews is adapted for the present study as presented in Figure 3.1.



**Figure 3.1: Capital Investment Decision Process**

As depicted in Figure 3.1, the four stages are the identification stage, the development stage, the selection and implementation stage, and the evaluation stage, where each comprises of several sub-stages.

### 3.3 The Escalation/De-Escalation Phenomenon

Several definitions were given in the literature for the escalation/de-escalation phenomenon. Since the focal area of this research is to understand managers' (de)-escalation decisions (see Table 3.2), it is important to critically review definitions for the escalation/de-escalation phenomenon in the context that is consistent with the aim and objectives of the current research as follows.

**Table 3.2: Escalation/De-Escalation Decisions**

<i>Decision</i>	<i>Project progress</i>	
	Successful	Failure
Correct	Continue	De-escalate
Incorrect	Quit	Escalate

#### 3.3.1 The Concept of Commitment Escalation

The escalation of commitment, which is a central concept in this research study is generally understood as a subsequent decision of an initial investment decision related to a project that is no longer meeting its strategic plan and goals (e.g. Staw, 1981; Garland and Conlon, 1998; Citera et al., 2000). For instance, feedback information indicates that the investment project has a negative net present value (NPV) or an internal rate of return (IRR) below the minimum desired rate of return (hurdle rate), hence the project manager would face the choice between continuing to incur losses or immediately withdrawing from that investment project.

Therefore, as suggested by the existing literature (see for example, Bazerman and Neale, 1992; Harrison and Harrell, 1995; Cheng et al., 2003), there are three key aspects to this concept:

1. Escalation of commitment is a decision subsequent to an initial investment decision.
2. The evaluation of the profitability and failure/success of the current investment project.
3. The decision maker has the choice of either to continue with or to withdraw from the investment project.

In more detail, the first aspect highlights the fact that the decision to escalate is a subsequent to an initial strategic investment decision. Escalation of commitment is not the starting point of an investment; it is the decision that follows the initial investment decision with the exception of investments that have a specific nature and are surrounded by special circumstances, in which committing more resources to those investments would be considered to reflect the “wasteful” face of commitment (e.g. Staw, 1981; Harrison and Harrell, 1995; Garland and Conlon, 1998; Wilson and Zhang, 1997; Citera et al, 2000).

This special nature and circumstances were described in the literature through several terms such as: “*uneconomic projects*” (Cheng et al., 2003); “*projects that logically should be discontinued*” (Harrell and Harrison, 1994); “*failing course of action*” (Schmidt and Calantone, 2002); “*economic conditions suggest that cancelling the project would be the best alternative*” (Staw and Ross, 1978); or, “*a project beyond an economically defensible point*” (Staw, 1981). The fact that an escalation decision is a subsequent to an initial investment decision was the motive for most escalation authors who examined the effect of personal responsibility on escalation decisions; specifically, it was the reason that escalation has become widely discussed in the psychology and social psychology literature (e.g., Staw, 1976; Brockner et al., 1979; Bobocel and Meyer, 1994; Kirby and Davis, 1998).

Escalation authors who examined the effect of personal or initial responsibility on escalation decisions based their assumption on the link between the decision maker who initiated the investment project and his/her decision to escalate. For example, Staw (1981: 579) explained managers' decision to escalate through their need to justify a previous behaviour as: *“individuals may go beyond the passive distortion of adverse consequences in an effort to rationalize a behavioural error. By committing new and additional resources, an individual who has suffered a setback could attempt to turn the situation around or to demonstrate the ultimate rationality of his/her original course of action.”*

The second aspect is linked to evaluating the profitability and success of the problematic investment project. Escalation authors have pursued two lines to explain the degree of project success/failure. The first line focused on the available feedback information, which indicated that the future investment has a negative net present value (NPV). The current literature in the field of capital budgeting and financial management suggests that accepting and continuing a capital investment project is conditional on the positive NPV of the project, or an IRR that is higher than the minimum desired rate of return (hurdle rate) (Horengren et al., 2002; Brearly and Myers, 1996).

According to this rule, any project with a negative NPV will be rejected and any processing project with a negative NPV or an IRR less than the hurdle rate will be terminated (e.g. Cheng et al., 2003; Statman and Caldwell, 1987). The importance of including this rule is to clarify the situation to be examined so there will be no risk of providing misleading results. Such a rule was presented explicitly in a limited number of

studies in the existing literature either in the definition of a losing project, such as the one presented by Devaney (1991), who defined the losing project as a project that has negative net present value (NPV) when he explained the two edges of commitment.

Alternatively, this rule was presented explicitly through the scenarios that were provided in the experimental tasks. For example, Harrell and Harrison (1994) provided subjects with a scenario where the NPV was less than the salvage value of the project in order to explain the high degree of project failure. Moreover, Harrell and Harrison (p. 572) have expected that: *“since the project’s current salvage value exceeded the net present value of its cash flow, the normatively correct decision as taught in the participants’ economics and managerial accounting courses was to discontinue the project.”*

The second line that escalation authors have pursued is linking the evaluation of the profitability and success/failure of the problematic investment project to the ability of the project to achieve the established goals. For example, Ross and Staw (1986: 274) have stated that the project is failing and there is no hope for the project to achieve the established goals: *“escalation situation is a situation where things have not only gone wrong, but where potential actions aimed at curing the problem can actually deepen or compound one’s loss.”* Therefore, escalation would represent completely an irrational behaviour that can be highlighted as the persistence of a previously prescribed course of action past the point where a rational analysis would suggest it was profitable (Bazerman and Neale, 1992).

The third aspect of the escalation phenomenon concentrates on the matter of choice where the decision maker can either continue or withdraw from the escalation conflict. Yet, some escalation authors have confused the definition of escalation of commitment with the idea of managers being locked or trapped in a course of action. Drummond (1994: 591), for example, defines escalation as a situation that: *“refers to predicaments where individuals and organizations become trapped in losing courses of action as a result of earlier decisions.”*

In order to explain the difference between managers being trapped or locked and the process of escalating commitment, it is essential as a starting point to go back to the dictionary (The Concise Oxford Dictionary, 1995) and pick up the basic meaning of the four concepts: escalating; trapped; locked; and, entrapment. Escalating (p. 459) according to the dictionary means: *“increasing or developing by stages”*, being trapped (p. 1484), on the other hand, means: *“stop and retain in”*, being locked (p. 800) similarly, means: *“become rigidly fixed or immovable.”* Finally, entrapment (p. 451) refers to: *“the act or an instance of entrapping; the process of being entrapped.”*

Escalation of commitment is a situation *“where there is an opportunity to withdraw or persist”* (Staw and Ross, 1987b: 40). Therefore, escalation depends mainly on the choice that managers have in several stages of the failing investment lifetime. Oppositely, the choice element in being trapped or locked is missing; in fact, being trapped is an advanced stage of the escalation of commitment.

Additionally, entrapment *“is a particular type of conflict escalation, based on the individuals’ need to feel that their past commitment to a chosen course of action was not made in vain”* (Brockner and Rubin, 1985: 6), is always viewed as a *“bad”* situation, *“whereby individuals escalate their commitment to a previously chosen, though failing course of action”* (Brockner and Rubin, 1985: 5) and *“in contrast to escalation research, subjects in entrapment situations typically incur small continuous losses as they seek or wait to achieve a goal”* (Bowen, 1987: 53).

### **3.3.2 The Concept of Commitment De-Escalation**

De-escalation of commitment, in the context of this research, is a concept that can be considered as a subsequent decision of escalation, which is related to terminating or redirecting a problematic project that is not meeting its strategic plan and goals anymore and is made through several stages (e.g. Ryan, 1995; Montealegre and Keil, 2000; Mähring et al., 2008; Chong and Suryawati, 2010).

This concept considers the following two aspects:

1. De-escalation of commitment is a consequence decision of escalation that goes beyond the idea of just abandoning or terminating a project.
2. De-escalation of commitment decision is not a sudden or a one-step choice that is made without planning, but a decision that is based on several stages.

The first aspect is considering de-escalation as a decision that pursues escalation of commitment. Therefore, it is not only a terminating or an abandoning decision. In order to clear this misunderstandings it is important, borrowing from project management literature (Hormozi et al., 2000), to bring to light the relationship of three elements to the

type of the decision to be made: a) when the decision will be made, b) how much cost was allocated, and c) whether the decision will be made because the project is considered as a successful or failing venture. With regard to the time and the amount of costs allocated, the decision to withdraw from a project might take place in the early stages of its life cycle, sometimes just before few or no costs have been allocated because of, for example, shortage of financial supply, changes in consumer tendency, negative relationship between costs and expected benefit, or firm merging (Capples, 2003; Kerzner, 2006). In this view, since there is no evidence of any escalation to occur in terms of exceeding the estimated time and costs, therefore, the choice to withdraw cannot be considered as a de-escalation decision; it is only a terminating, abandoning, or cancelling a project.

Molden and Hui (2011) suggested the regulatory-focus approach to explain de-escalation of commitment; they found evidence in two laboratory studies in the USA that motivations of promotion-focused in terms of focusing on gains of the project, broadening the consideration of alternatives, and foregoing previous choices for new opportunities could reduce managers' escalation of commitment tendencies. Moser et al. (2013) suggested "pre-decisional accountability with unknown opinion of the audience" as a de-escalation strategy, as they found empirical evidence in a laboratory study in Germany that when subjects were accountable for their initial choices they were less likely to persist with a failing project.

With regard to why the decision is made (i.e., because the project is considered as a successful or failing venture), de-escalation of commitment is not made if the project has



succeeded and accomplished its goals, whereas the decision to be made eventually will be to terminate, stop or close a successful project that has reached completion (Hormozi et al., 2000). Whereas, de-escalation of commitment is linked only to failing or problematic projects that have suffered from escalation outcomes. It is a consequence decision that takes place after the decision maker has been locked in a cycle of several escalation decisions (Ryan, 1995; Gosh, 1997; Montealegre and Keil, 2000).

In agreement with the interpretation above, almost all de-escalation authors have defined or explained managers' tendency to abandon or stop a failing project. For example, McCain's (1986) results demonstrated that managers have the tendency to de-escalate after being locked in a cycle of escalation decisions to the failing project. Ryan (1995) named decision makers as "*non-escalators*" where he defined escalation of commitment as decision makers' trend to carry on their investing of resources in courses of action that were problematic and where the final results of continuing the investment were doubtful. Gosh (1995) and Cheng, et al. (2003), defined de-escalation of commitment strategies as managers' tendency to decrease escalation of commitment to both sunk costs and the probability of escalation of commitment respectively.

De-escalation of commitment is not limited to terminating or abandoning a failing project; it might include re-directing the project to turn the situation around and recoup escalation consequences (Montealegre and Keil, 2000). This view was found lately in case studies but not in laboratory settings studies where the pursued approach was to design scenarios that limited respondents' answers to either escalate or de-escalate commitment in terms of

continuing or stopping the funds to failing projects. For example, Simonson and Staw (1992: 422) examined subjects' tendency to de-escalate commitment, in a laboratory setting, where the second part of the presented scenario contained the following phrase: *“your recommendation to allocate the \$3 million.....as you will note.... the results have been rather disappointing.”* Their results gave more support to de-escalation of commitment as subjects decided not to allocate the extra \$3 million to the failing project. However, they called for more field research to investigate de-escalation of commitment strategies.

In a case study, Montealegre and Keil (2000) examined the Computerized Baggage System Project at Denver International Airport (DIA) in Denver City (USA), where the project was assumed to be operating by October 1993. They found that when the baggage system failed in terms of a 16-month delay and an amount of \$2 million exceeding the budget, managers of the project, after several discussions, de-escalated commitment through redirecting the project and restructuring the baggage system by dividing the implementation responsibility of the original contract to two parties: the United Airlines and the City of Denver.

The second aspect of the de-escalation phenomenon is related to the fact that de-escalation is not a sudden or a one-step choice that is made without planning. Instead it is a decision that is developed through several stages. This aspect was more explicit in the literature that was based on case studies (Ross and Staw, 1993; Montealegre and Keil, 2000; Mähring et al., 2008; Flynn et al., 2009; Arbuthnott and Dolter, 2013). For example, Ross

and Staw (1993) recommended an exit strategy to de-escalate commitment in their case study that depended on four propositions:

1. Reducing social and psychological determinants through replacing top management who initiated the escalated project.
2. Minimizing organisational determinants through separating the project from the company's central goals.
3. Reducing project determinants by assuring the organisation's persistence in the business after withdrawal through financial deals and new loans.
4. Minimizing external political pressure by announcing the worries of persisting in a failing project.

Montealegre and Keil (2000: 430-431) suggested four proceeding stages for de-escalation decisions that are teemed with several factors as follows:

1. *Problem recognition stage*: involves questioning the project's capability to be operating at the pre-scheduled time and within the initiated budget.
2. *Re-examination of prior course of action*: includes reconsidering the problematic project.
3. *Search for alternative course of action*: by clearly identifying and legally accepting the alternative.
4. *Implementing an exit strategy*: through influencing other groups or parties who had a significant authority and control on the projects' progress to discontinue the project.

As most of the empirical literature is laboratory based, which has different settings from case studies (Levitt and List, 2007; Falk and Heckman, 2009), this aspect was not clearly evident in the choices presented to subjects of their experiments. Instead, the de-escalation choice was, on one hand, presented on a scale to measure the strength of the decision (Garland et al., 1990; Cheng et al., 2003; Greitemeyer et al., 2009). For example, Cheng,

et al. (2003: 77), examined “*subjects’ tendency to continue or terminate the project; their response was measured on a 10-point scale; a response of 1-5 indicated project termination while 6 to 10 indicated continuation of the current investment project.*” Similarly, Greitemeyer et al. (2009), asked subjects to allocate from zero to 10 million Euros to the failing project to measure the amount of (de)-escalation of commitment.

Alternatively, subjects were asked to make one choice either to persist in or discontinue the failing project (Boehne and Paese, 2000; Karlsson et al., 2002). Boehne and Paese (2000: 184), for example, handled subjects a scenario regarding an opening of a tennis club project. It was explained in the scenario that the project might require exceeding the initiated budget (\$10 millions) to be completed, afterwards “*subjects were asked two questions: 1) completing the project, and 2) not completing the project.*”

### **3.4 Theoretical Models to Explain the (De)-Escalation Phenomenon**

Since the mid-1970s, a large number of theories have been proposed to explain the (de)-escalation phenomenon. However, summarizing and integrating this growing literature is difficult because theoretical explanatory models presented were largely fragmented and detached (Staw and Ross, 1987b; Wilson and Zhang, 1997; Karlsson et al., 2005; Sleesman et al., 2012). Wilson and Zhang (1997) pointed out that none of the theories they reviewed had fully explained the (de)-escalation of commitment phenomenon, though each of the theories reviewed possessed an explanatory power. Furthermore, they called for more research that would focus on the effect of the investment decision making process away from laboratory conditions (Wilson and Zhang, 1997).

Escalation/de-escalation of commitment models and theories could be grouped into several categories according to several perspectives. First, according to their source of origin, theories were either developed to only fit the (de)-escalation phenomenon such as Ross and Staw's model (in different studies of Ross and Staw, 1986; 1987a; 1987b; 1991; 1993), new project development effect (Oorschot et al., 2011), outside-board members effect (Woods et al., 2012), and an analytic model (Winch, 2013). Alternatively, they were adopted from other disciplines to explain the phenomenon such as attribution theory (Gross, 1991), agency theory (Harrison, and Harrell, 1993), decision dilemma theory (Bowen, 1987), expectancy theory (Vroom, 1964), prospect theory (Kahneman and Tversky, 1979; Whyte, 1986; Garland and Newport, 1991), reactance theory (Staw and Ross, 1978; Bateman, 1986), self-justification theory (Staw, 1976; Rubin et al., 1980, 1980), self-presentation theory (Brockner, 1992), self-efficacy theory (Whyte et al., 1997), and behavioural forecasting (Ku, 2008).

Second, according to the rationality that triggered their explanation, most authors who applied these theories have explained escalation in psychological terms (e.g. Staw, 1976; Tegar, 1980; Brockner and Rubin, 1985; Staw and Ross, 1987a; Schulz and Cheng, 2002; Gunia et al., 2009). The assumption underlying these studies was that when individuals commit new or additional resources, they might try to rationalize a behavioural error by going past a passive distortion of adverse consequences. Further, an individual who has suffered a setback could try to turn the situation around or to demonstrate the ultimate rationality of his/her original decision (Staw, 1981). On the other hand, little effort was

given to explain this phenomenon in economic terms (e.g. Tang, 1988; Whyte, 1993; Harrison et al., 1999; Sabherwal et al., 2003; Chong and Suryawati, 2010).

Finally, with regard to factors that affected the escalation/de-escalation phenomenon, some theories have focused only on factors that are under the decision makers' control such as managers' attitudes and personalities, (i.e., attribution theory; reactance theory; self-justification theory; and self-efficacy theory). Others have, in addition to managers' attitudes and behaviour, have taken into account the effect of factors that are beyond the decision makers' control such as the expected utility of the project and other economic considerations, (i.e., the decision dilemma theory; expectancy theory; prospect theory; and Ross and Staw's model, 1993), or considered the separation between ownership and management, accordingly, they were based on the conflict that rises between owners' and managers' own interests (agency theory).

Since the current research focuses mainly on the de-(escalation) scheme, the aim of the next sections is to review key theories that are of direct relevance to explaining (de)-escalation of commitment (see Table 3.3), which are self-justification theory, agency theory, prospect theory and approach-avoidance theory (Keil et al, 2000; Pan et al, 2009), whereas a brief review of those theories will be presented in the following sections, considering their relationship to managers' escalation/de-escalation decisions.

**Table 3.3: A Summary of Theories of Project (De)-Escalation\***

<i>Theory</i>	<i>Underlying concept of theory</i>	<i>How theory rationalizes escalation</i>
<b>Self-Justification theory</b>	People have the need to justify their actions and decisions, especially the wrong ones.	In order to justify themselves psychologically or socially, managers tend to allocate more resources to a failing endeavour.
<b>Agency theory</b>	Looks at the conflict of interests between the principal and the agent that appears within incomplete and asymmetric information	When there is a conflict between agents' and principals' self-interests, agents are more likely to act towards their own self-interest and escalate commitment.
<b>Prospect theory</b>	Describes decisions between alternatives that involve risk.	When managers face failing projects they tend to be risk seeking and allocate more funds to the failing project.
<b>Approach-Avoidance theory</b>	A situation in which an individual faces a single event that has both fascinating and averting elements.	Managers have the tendency to escalate when escalation factors that affect their decision are more attractive than de-escalation factors.

\* Table modified from Pan et al. (2009: 78)

### 3.4.1 Self-Justification Theory

The theory of self-justification is derived mainly by the cognitive dissonance model where people might go against their better judgment and make the choice that would never make them feel regretful of their decisions i.e., they have a need to justify their actions and decisions, especially the wrong ones (Festinger, 1957). It is based on the idea that when an individual comes across cognitive dissonance, or a situation in which his/her behaviour is psychologically inconsistent with what he/she believes, that individual will be more likely to justify the behaviour declining any negative feedback associated with it (Aronson et al., 2006).

Behaviour justification might be, as suggested by Holland et al. (2002), internally or externally. Internal self-justification refers to a change in the way people value their actions, as it may be an attitude change, underestimation or rejection of the negative detriments. Conversely, external self-justification aims to diminish one's responsibility for

a behaviour and is usually elicited by moral dissonance; it refers to the use of external excuses to justifying one's actions, whereas, the excuses can be a realignment of personal responsibility, short of personal control or social pressures.

Both, internal and external self-justification grasped the attention of a large number of escalation/de-escalation authors since the mid-seventies until recently (see Table 3.4), it could be argued that it was the most applied theory in laboratory studies to explain why managers allocate more resources to a failing endeavour (Staw, 1976; Brockner et al., 1981; Whyte, 1991; Simonson and Staw, 1992; Drummond, 1997; Keil et al, 2000; Greer and Stephens, 2001; Schulz and Cheng, 2002; Gomez and Sanchez, 2013). Regarding external self-justification, several authors have explained managers' (de)-escalation decisions through the desire of managers to justify other parties that were beyond their own control in terms of social or political pressures (Brockner et al., 1981; Ross and Staw, 1986; Beauvois et al., 1993; Drummond, 1994; Keil et al., 2000; Pan et al., 2009). For example, in a case study in the UK, Pan et al. (2009) found that the managers' external self-justification in terms of their identification with customers was one of the reasons for escalation of commitment.

Regarding internal self-justification, the existing literature explained managers' (de)-escalation decisions as a result of justifying their earlier choice either through being involved or personally responsible for those decisions (Staw, 1976; Caldwell and O'Reilly, 1982; Brown and Solomon, 1993; Drummond, 1998; Keil et al., 2000; Wong, 2005; Slaughter and Greguras, 2008; Alvarez et al., 2011; Contractor et al., 2012). For example,



Schulz and Cheng (2002) found that subjects in the high personal responsibility condition were more likely to escalate commitment than those in the low personal responsibility condition, which enhanced the assumption of the effect of personal responsibility as a key factor that is driven by self-justification theory to explain subject's escalation attitudes.

**Table 3.4: Authors and Variables of Self-Justification Theory**

<i>Authors</i>	<i>Year</i>	<i>Variables</i>
Staw	1976	Personal responsibility
Staw & Ross	1978	Prior experience
Brockner et al.	1979	Resource allocation process and prior limit setting
Staw & Fox	1977	Initial responsibility and efficacy of resources
Conlon & Wolf	1980	Visibility
Leatherwood & Conlon	1987	Initial responsibility and diffusion of blame
Barton et al.	1989	Initial responsibility, positive and negative information
Whyte	1991	Individual and group prior responsibility
Simonson & Staw	1992	Personal responsibility, less threatening outcome, minimum goal setting, and accountability for decision process
Keil et al.	1995	Nationality and availability of alternative investment
Harrison & Harrell	1995	Initial responsibility, and NPV; IRR explicit information
Boulding et al.	1997	Ambiguous environment, future opportunity costs, and pre-commitment to a self-specified stopping rule
Drummond	1997	Desire for self-justification, paucity of information, and expectations are not met
Rao & Monk	1999	External justification, and inner motivation
Sabherwal et al.	2003	Personal responsibility, job insecurity, and competitors satisfactory experience
Sivanathan et al.	2007	Self-esteem, and self-affirm
Slaughter & Greguras	2008	Evaluation bias, and personal responsibility
Harvey & Victoravich	2009	Level of completion, and presence of an alternative project
Gunia et al.	2009	Psychological connection
Gomez & Sanchez	2013	Nationality, past investment decision
Salter et al.	2013	Nationality, self-justification

Simonson and Staw (1992) investigated strategies to reduce escalation of commitment as they focused on moderating the effect of internal self-justification in terms of cutting down the effect of personal responsibility as well as making negative outcomes less threatening and giving more power to other factors such as setting minimum target levels and evaluating decision makers on the basis of their decision process rather than the decision outcome. They found that, when the effect of self-justification was moderated

and more weight was given to other variables, subjects were less likely to escalate and preferred to withdraw from a failing project.

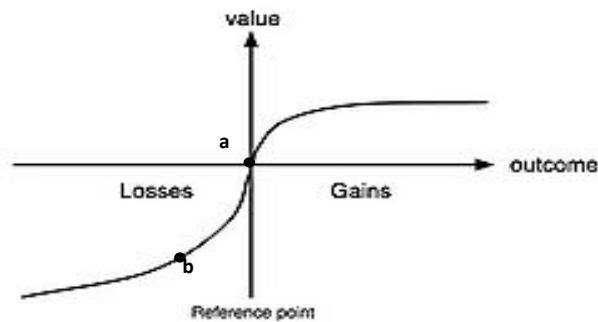
### **3.4.2 Prospect Theory**

Prospect theory was built by Kahneman and Tversky in 1979 as a psychological practical substitute to the expected utility theory. It describes how people might evaluate possible losses and gains in order to make a decision that involves choosing between risky alternatives. The theory presumes that managers identify and distinguish between negative and positive outcomes in relation to a particular recommended goal and that the satisfaction of the choice could be subject to whether the framing or evaluating of the negative outcomes are considered as expenditures or losses that will not be remunerated (Kahneman and Tversky, 1979; 1984).

Prospect theory was broadly applied to explain escalation of commitment (e.g. Thaler, 1980; Arkes and Blumer, 1985; Northcraft and Neale, 1986; Garland, 1990; Garland and Newport, 1991; Whyte, 1993; Ryan, 1995; Ruchala, 1999; Keil et al, 2000; Gomez and Sanchez, 2013; Salter et al., 2013). However, most research on escalation within the prospect theory approach has considered one or two of the theory's implications (see Table 3.5):

- Framing effects
- Risk attitudes
- Sunk costs

Thaler (1980) recommended prospect theory to provide a reliable ground to explain sunk cost effects in escalation situations through two features of the theory; the value function and the certainty effect (see Figure 3.2). The value function stands for the relation between the independently identified gains and losses and the individual's own value of such gains and losses.



**Figure 3.2: Prospect Theory Value Function**  
(Kahneman & Tversky, 1979)

When the decision maker initiates an investment, he/she would be at point (a). After a considerable failure has occurred, the decision maker will be at point (b), where additional losses do not cause great reduction of value; yet, equivalent gains do cause great growth of value. Accordingly, when the decision maker is at point (b), where sunk costs already exist, he/she might risk minor losses with the intention of obtaining probable great gains. The second feature of the prospect theory that explains sunk costs is the certainty effect, which might appear in two directions either by considering that totally certain gains are very much overvalued or by taking into consideration that certain losses are significantly undervalued (Thaler, 1980; Arkes and Blumer, 1985).

Following this line, several researchers have examined the sunk costs effect through prospect theory. For example, Arkes and Blumer (1985) conducted ten experiments where their scenarios ranged from topics related to events that subjects might face in their everyday life choices such as purchasing a holiday ski trip or buying a ready-made dinner, to topics that are related to decisions that face a president of an airline company or the owner of a printing company. In their ten experiments they found strong effects for sunk costs on subjects' final decisions to pursue with an action that is assumed to be failing and not creating any rewards in return.

**Table 3.5: Authors and Variables of Prospect Theory**

<i>Author</i>	<i>Year</i>	<i>Variables</i>
Northcraft & Neale	1986	Sunk costs, Explicit opportunity costs, and Enhance the salience of opportunity costs
Bondt & Makhija	1988	Sunk costs, and Degree of completion
Garland & Newport	1991	Sunk costs
Whyte	1993	Group decision making, and Sunk costs
Schaubroeck & Davis	1994	Personal responsibility, and Risk seeking vs. avoidance
Keil et al.	1995	Sunk costs, and Alternative investment
Keil	1995	Emotional attachment
Rutledge	1995	Group initial responsibility, and Negative information frame
Ryan	1995	Investor's belief
Sharp & Salter	1997	Negative domain
Ruchala	1999	Time spent, and Risk seeking (not meeting budget goals)
Keil et al.	2000	Nationality, Risk propensity, and Sunk costs
Sabherwal et al.	2003	Initial support for project, and Positive frame
Biyalogorsky et al.	2006	decision maker's involvement, and Biased belief
Zhiyuan & Qing	2008	Sunk costs, Framing, Decision making process.
Schulz-Hardt et al.	2009	Preference of initial responsibility
Gomez & Sanchez	2013	Nationality, Decision frame
Salter et al.	2013	Nationality, Risk framing, Risk avoidance

Framing effects, which is another feature of the prospect theory that was widely examined in the (de)-escalation of commitment literature (e.g., Barton et al., 1989; Whyte, 1993; Drummond, 1994; Sharp and Salter, 1997; Biyalogorsky et al., 2006). For example, Whyte (1993) examined the framing effects on groups' decisions to escalate. He proposed

that in the negative frame, where losses have occurred, managers would be risk seeking when they have to choose between assured losses and the probability of larger losses joined with an opportunity to prevent otherwise assured losses. He found that when subjects were asked to act as groups and choose between different alternatives in the negative frame, they were more likely to escalate than when they were asked to make the decision individually.

### **3.4.3 Agency Theory**

The concept of agency theory could be defined as an agreement where a person or more (the principals) employ another person (the agent) to perform particular duties on their behalf, which requires authorizing some managerial power to the agent (Jensen and Meckling, 1976). A commonly illustrated agency model is when owners or shareholders of an organization, performing as the principals, employ a chief executive officer, performing as the agent, to accomplish and manage the firm or when the senior management of an organisation, the principal, employs a qualified junior manager, as the agent, to deal with definite actions of the organisation (Kaplan and Atkinson, 1989).

The agency conflict deals with the complexities that appear under situations of incomplete and asymmetric information when the principal and the agent might not have the same interests. As suggested by Eisenhardt (1989) the following consequences occur:

- Agents would accomplish their duties in agreement with their own self-interest.
- Goal conflict would occur between the principals and the agent.
- Agent's decisions and actions consequences could be evaluated simply.
- Agent's attitude towards risk would be a risk adverse attitude more than principals.

In order to explain the escalation behaviour through the agency theory, escalation authors (e.g., Harrell and Harrison, 1994; Harrison and Harrell, 1993; 1995; Kirby and Davis, 1998; Rutledge and Karim, 1999; Keil et al., 2000; Salter et al., 2013) have taken into account how incentives and information asymmetry influence the principal-agent relationships. For example, Harrison and Harrell (1993) suggested two different situations might arise in organisations that are linked to the information provided of the failing project:

- Public information: the information available to the principal supported him to follow actions made by the agent, within a state of information where asymmetry exists. The agent with an incentive to shirk is not expected to act according to his own interest as he would discontinue the failing project.
- Private information: the information was available only for the agent. The principal is not able to follow the actions made by the agent, within a state of information where asymmetry exists. The prospective of goal differences between the principal and agent occurs, where the agent with incentives to shirk is expected to make decisions that meet his own self-interest at the cost of the principal's interest.

Several authors have attempted to explain escalation behaviour through the propositions of the agency theory (see Table 3.6). Harrison and Harrell in several studies (1993; 1994; 1995) have followed such a line. For example, they found strong support for their assumption that project managers who established an investment project and consequently went through situations of adverse selection (privately held information and an incentive to shirk) would be more likely to continue their initiated projects when surrounded by failure (Harrison and Harrell, 1993). Kirby and Davis (1998) noticed a major agency theory propositions influence in several features of their experiment: a) when agents'

actions are monitored they would act in favour of the principal's self-interest, b) when agents are monitored their attitude towards risk will be less risk seeking and therefore they are less likely to escalate their commitment to failing projects, and c) when agents are accountable for their decisions this would enhance organisation control. Rutledge and Karim (1999) examined adverse selection effects as well as the level of moral reasoning on managers' escalation tendencies. They found that when subjects face high levels of adverse selection and low levels of moral reasoning they will be more likely to escalate than subjects with high moral reasoning or subjects who faced low levels of adverse selection.

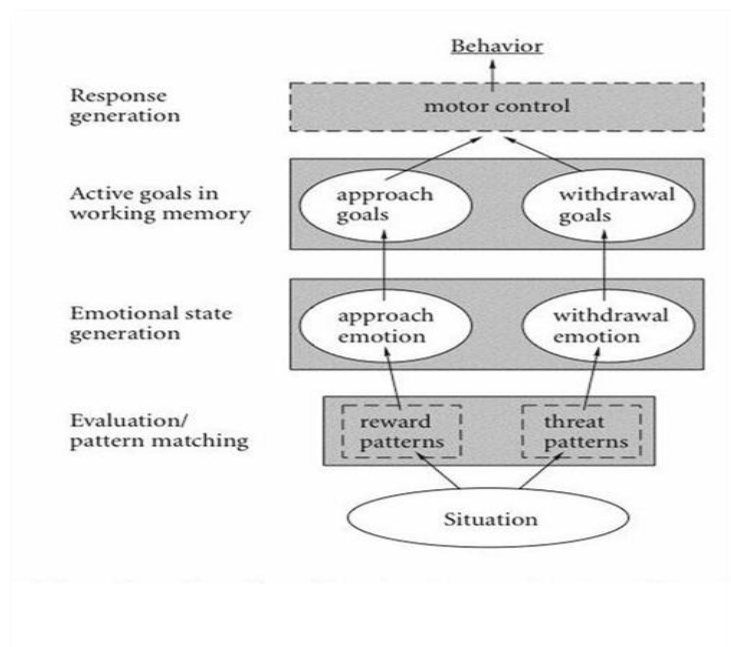
**Table 3.6: Authors and Variables of Agency Theory**

<i>Author</i>	<i>Year</i>	<i>Variables</i>
Harrison & Harrell	1993	Existence of adverse selection, and Personal responsibility
Harrell & Harrison	1994	Existence of adverse selection
Sharp & Salter	1997	Nationality (north America)
Kirby & Davis	1998	Monitoring managers' decisions, and Accountability
Harrison et al.	1999	Existence of adverse selection, and Nationality (Americans)
Rutledge & Karim	1999	Existence of adverse selection, and Moral reasoning
Keil et al.	2000	Project size, Goal congruency, and Information asymmetry
Salter et al.	2004	Nationality (American), and Existence of adverse selection
Salter et al.	2013	Nationality, potential long-term payoff

#### **3.4.4 Approach-Avoidance Theory**

The approach-avoidance theory displays a situation where a person has to deal with an issue that has both positive and negative characteristics. The theory is related to situations that have multiple features, which cause the decision maker to struggle as he/she has to decide whether to approach or to withdraw from such situations, when he/she has to make his/her decision after comparing and evaluating both the positive and negative aspects of the situation to choose which forces are stronger -the positive or negative- to effect his/her

decision (Pan et al, 2009). The mechanism of the theory was described in Gray and Braver (2002) study, as they linked individuals' behaviour to their emotions, which as they recommended are strongly related to achieving the goal of a specific event (Figure. 3.3). They pointed out that events that generate an emotion could be real and continuing, predictable, recalled from memory, or a fancy. In Figure 3.3, these events are indicated jointly according to the situation.



**Figure 3.3: Schematic Outline of Emotion-Related Processing Stages**  
(Gray and Braver, 2002: 298)

When an event evokes a warning, the follow-on condition would be disappointing and triggers withdrawal. On the other hand, if the event is more likely to be encouraging, the follow-on condition would be satisfying and approach is motivated. Moreover, they suggested that emotions go through several stages before being translated into behaviour.



The approach-avoidance theory was applied by few studies to explain both escalation and de-escalation of commitment domains (see Table 3.7).

**Table 3.7: Authors and Variables of Approach-Avoidance Theory**

<i>Author</i>	<i>Year</i>	<i>Variables</i>
Rubin & Brockner	1975	Goal attainment, Reward with attaining goal, and Cost of giving up an investment
Keil et al.	2000	Project completion
Pan et al.	2006	Considered a failure, Sunk costs, Responsibility, Close to completion, Opportunity cost, and Loss of faith in project leadership
Pan et al.	2009	Reward for success, Proximity to goal, Ambiguity, Sunk costs, Information asymmetry, and Opportunity cost

Rubin and Brockner (1975) were the first to suggest that (de)-escalation of commitment could be considered as an illustration of this theory. They examined the effect of the passage of time either as an investment or an expense on entrapment. They built their assumption on predictions of the approach-avoidance theory where an individual is more likely to abandon a waiting situation from the beginning when the desire to avoid is higher than the desire to approach. They found that entrapment is more likely to take place when the choice to remain in a waiting situation has been reached. Within the passage of time effect, the desire to approach increases more speedily than the desire to avoid (Rubin and Brockner, 1975). They concluded that within the approach-avoidance theory, escalation of commitment could be structured as a performance that takes place when major features that persuade perseverance appear to overshadow features that persuade withdrawal from such a conflict (Brockner and Rubin 1985).

Keil et al (2000) expanded the earlier work done by Rubin and Brockner, as they suggested three factors that might overshadow the cost of perverseness in an escalation situation within the approach-avoidance theory. Those factors were: (1) the size of the

reward for goal attainment, (2) the cost of withdrawal, or (3) the proximity to the goal. Further, they examined the effect of goal completion as a construct that is derived from approach avoidance theory on managers' escalation and de-escalation decisions. Their results gave strong evidence that goal completion has a great effect on managers' escalation/de-escalation decisions.

(De)-escalation authors were interested in examining the effect of goal completion on escalation of commitment (see for example: Conlon and Garland, 1993; Garland and Conlon, 1998; and, Boehne and Paese, 2000). For example, Garland and Conlon (1998) found that project completion has great power to explain escalation more than sunk costs. They also found that when a project was nearly completed, subjects ignored other variables such as opportunity costs or expected revenues as they concentrate on completing the project.

Pan et al (2009) examined constructs from four theories: self-justification, agency theory, prospect theory, and approach-avoidance theory on managers' escalation/de-escalation decisions in an IS project in British Utilities (BU), which was a huge utility supplier, established in the UK. The project was launched to determine the problem of long queues at a call centre. They found that the approach-avoidance theory presented a good explanation for managers' escalation/de-escalation decisions. They further found that ambiguity, which was known as a variable that generates escalation, contributed to de-escalation decisions as well.

### **3.5 Evaluation of the Use of Theoretical Models in Empirical Studies**

As mentioned in Section 3.4 above, the four main theoretical models that populate the literature and have been frequently applied to explain the escalation/de-escalation phenomenon are *self-justification theory*, *agency theory*, *prospect theory*, and *approach-avoidance theory*. These four theories were introduced to explain the escalation/de-escalation of commitment phenomenon at different points in time: in the mid-seventies (self-justification, approach-avoidance theory), early-eighties (prospect theory) and early-nineties (agency theory), noting that the self-justification theory has been most prominent in laboratory based studies.

Having described each theory (see Sections 3.3.1-3.3.4), and in order to determine the most appropriate theory for the current study, a comparison between the four theoretical models will be presented, with regard to how they have been used to explain (de)-escalation decisions, in terms of their operationalisation mechanism and variables coverage in the following two sections.

#### **3.5.1. Operationalisation Mechanism**

Except for the approach avoidance theory, there are two main shortcomings regarding how the theories have been operationalised. The first shortcoming relates to their capability to explain escalation/de-escalation trends. For instance Keil et al. (2000) have tried to empirically test, through a select set of variables, to what degree each theory (self-justification, agency, prospect, and approach-avoidance theory) could explain managers' escalation/de-escalation of commitment decisions. They found that prospect theory and

self-justification theory might explain escalation tendencies but both theories failed to explain managers' de-escalation of commitment, which perhaps encouraged de-escalation of commitment authors to look for different theoretical models to explain managers' de-escalation trends (i.e., Chulkov, 2009; Flynn et al., 2009; Pan and Pan, 2011). In two sequential case studies in the UK, Pan et al. (2006; 2009) found that the approach-avoidance theory explained managers' (de)-escalation trends in terms of costs of withdrawal (approach escalation) and persistence (avoid escalation), where sunk costs effect and proximity to the goal were considered as withdrawal costs, while ambiguity and the availability of an alternative investment were grouped under the costs of persistence.

The second shortcoming concerns the source that provokes the mechanism of each of the four theories when rationalizing managers' (de)-escalation decisions. Self-justification theory (see Section 3.4.1) rationalizes managers' choice by relying on their personal responsibility of their original decision as they try to justify their earlier decision by investing additional resources, (Fox and Staw, 1979; Bobocel and Meyer, 1994; Gomez and Sanchez, 2013). Prospect theory (see Section 3.4.2) relies on managers' attitudes in the way they frame the outcome of a decision, as they become more risk seekers in the losses domain and risk averse in the domain of gains (Northcraft and Neale, 1986; Whyte, 1993; Schulz-Hardt et al., 2009; Gomez and Sanchez, 2013). Agency theory (see Section 3.4.3) relies on the divergence of goals between a firm's owner (principal) and its managers (agents), which becomes more significant when there is asymmetry of information and the agent can obtain a personal gain (Harrison and Harrell, 1993; Salter et al., 2013).

With regard to the approach avoidance theory, since the mid-eighties (e.g. Northcraft and Wolf, 1984; Bowen, 1987; Harrison and Harrell, 1995) research has been calling for enhancing the role of factors that are more related to the project such as the investment decision process (Simonson and Staw, 1992; Wilson and Zhang, 1997; Greitemeyer et al., 2009), investment opportunity (McCain, 1986; Montealegre and Keil, 2000; Fox et al., 2009; Salter et al., 2013), investment appraisal methods (Cheng et al., 2003; Denison, 2009; Karami and Farsani, 2011), revenue estimates (Bateman, 1986, Winch, 2013), and monitoring and control techniques (Hollenbeck et al., 1989; Schulz and Cheng, 2002; Chong and Suryawati, 2010; McNamara., 2002). This trend is consistent with the explanatory mechanism of the approach-avoidance theory in interpreting managers' (de)-escalation decisions, whereas the theory (see Section 3.4.4) rationalizes managers' choices by relying on the substance of attributes that might persuade perseverance/withdrawal from a conflict situation (Rubin and Brockner, 1975; Pan et al., 2009; 2006) away from managers' responsibility feelings (self-justification theory); framing attitudes (prospect theory) and satisfaction of achieving personal gains (agency theory).

### **3.5.2 Variables Coverage**

There are two main shortcomings with regard to variables coverage. The first is caused by the limited number of variables that have been linked to each theoretical model. This is mainly due to the nature of laboratory studies, which dictates the controlling of variables and their interactions, and the limited scope of studies based on real life cases (see Table 3.7). This was clearly noticed in the effect of initial responsibility (self-justification theory), information framing or risk attitudes (prospect theory), principal-agent conflict

(agency theory), and goal attainment (approach-avoidance theory) (e.g. Ryan, 1995; Kirby and Davis, 1998; Ruchala, 1999; Greer and Stephens, 2001; Schulz and Cheng, 2002; Salter et al., 2004; Pan et al., 2006).

The second shortcoming is that the role that variables play in the (de)-escalation changes over time. As explained earlier in Section 3.3 the escalation/de-escalation phenomenon represents a series of decisions that either increases or decreases over time, which is more obvious in researches that are based on investigating a case study (e.g. Ross and Staw, 1993; and Montealegre and Keil, 2000). Therefore, the element of time is crucial for theoretical models when providing an explanation for managers' choices. However, this element was absent in case studies that relied on theories such as self-justification or prospect theories (e.g., Bondt and Makhija, 1988; Keil, 1995; Ryan, 1995; Kisfalvi, 2000). For example, Ryan (1995: 240) in five case studies in Australia based on the prospect theory, found that managers' (de)-escalation decisions might change only if their beliefs regarding the investment have changed over time: *"non-escalating investors did report dramatic changes in their mental representations of the investment situation....they no longer believed that the company would grow into a large revenue company."* Keil (1995: 349) in a case study in the USA based on self-justification theory found that the project was terminated because *"financial support was withdrawn and all further development and support for the project was terminated."* However, self-justification theory could not explain the de-escalation of the project as no evidence could be found whether the influence of personal responsibility had changed over time to cause shutting down the

project. That is why Keil then asked for a more complete theoretical model that could explain the (de)-escalation of commitment.

On the other hand, the time element, as was observed by Brockner and Rubin (1975) seems to be well accommodated by the approach-avoidance theory for both tendencies to approach and avoid a decision. This is not limited to a specific variable, as any factor could be considered as a driving or restraining force of escalation. For example, in Pan et al.'s (2009) study, ambiguity in the early stages of commitment to the project, in terms of receiving mixed signals regarding the usefulness of the project was considered as an escalation approach tendency, while receiving mixed signals regarding the usefulness of the project afterwards in advanced levels of commitment was considered an avoidance tendency.

### **3.6 Implications for the Present Study**

On the basis of the foregoing review of existing theories, it can be argued that the approach-avoidance theory is the most appropriate theory that is capable of properly rationalising the (de)-escalation of commitment. This theory seems to provide a more complete explanation for decisions in these conflict situations because, as Pan et al. (2006: 1141) clarified, *“it captures the essence of complex situations that tend to create conflict in the mind of the decision maker who faces a project with ambiguous future... and...it acts as a foundation to bring several different escalation theories into one over-arching model”*.

Nevertheless, despite the established superiority of the approach-avoidance theory, careful scrutiny of the literature (e.g. Keil et al., 2000; Pan et al., 2009) reveals that it has not been used to its full potential:

1. There are only four studies that examined the propositions of the theory.
2. Only three of the four studies examined the theory with real-life case studies and one examined it through a laboratory setting.
3. Only a limited number of variables were examined, while many more relevant variables have been overlooked thus resulting in superficial explanations.

Having made an informed choice about the suitability of the approach-avoidance theory for the purposes of the current study, the above shortcomings dealt with, as will be explained in Chapter Five, through a systematic integration of relevant variables that are considered as driving or restraining forces of the escalation phenomenon.

### **3.7 Summary and Conclusion**

The aim of this chapter was to review the literature related to theoretical models that were suggested in the literature to explain managers' escalation/de-escalation decisions and the linked factors or variables within each theory. The chapter covered three main areas: addressing the importance of managing capital projects, review the various definitions and aspects of the escalation/de-escalation of commitment that authors have suggested, and reviewing alternative models and theories applied in the relevant literature.

After an extensive review of the definitions, models of the existing literature, it is concluded that in order to properly study the escalation/de-escalation phenomenon, a theoretical refocus is essential, starting with a definitional correction. Hence the proposed



working definition of de-escalation of commitment is “*a subsequent decision of escalation, which is related to terminating or redirecting a problematic project that is not any more meeting its strategic plan and goals and is made through several stages*”. Moreover, it is concluded from the detailed review of the literature that the approach-avoidance theory is, subject to adjustments, the most appropriate of the theoretical models available that fulfils the comprehensive nature of the present study. These conclusions are emphasized further through the review of the empirical literature, which is presented in the next chapter.

## **Chapter Four**

### **A Review of the Empirical Literature: Laboratory Experiments, Case Studies and Surveys**

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#### **4.1 Introduction**

In the previous chapter, relevant theoretical literature in the escalation/de-escalation field was reviewed, where the, approach-avoidance theory was found to be the most appropriate model for the purposes of the present study. This chapter complements the previous chapter by extending the literature review to empirical studies whether based on laboratory experiments or real life cases, in order to learn from their methodological choices, key findings and limitations to then inform the direction, focus and design of current study.

The chapter consists of: a review of the empirical studies of capital investment decisions process (Section 4.2), a brief historical introduction of studies of the (de)escalation phenomenon (Section 4.3), a review of studies that examined empirical variables separately whether they have a direct or indirect influence on (de)-escalation decisions (Section 4.4), and a review of studies that examined variables within groups (Section 4.5) whether they were controlled (laboratory based) or uncontrolled (real life cases). The limitations of existing studies are presented in Section 4.6, followed by an overall chapter summary and conclusion in Section 4.7.

## **4.2 A Review of Capital Investment Decisions Process**

A capital investment decision could follow either a formal or an informal process. Informality generally refers to prescriptive and structured written approach for the investment decision (Pike, 1996; Klammer et al., 2002; Alkaraan and Northcott, 2007). It also refers to the reliance on behavioural tendencies and entrepreneurial inclinations -in lieu of or in addition to budgeting processes- such as gut-feeling, experience, and judgment when undertaking investment initiative (Ekanem, 2005). A typical example in this regard is the desire of a manager to be in more control of the investment decision process (Prather et al., 2009), thus superimposing their personal preferences over formal procedures, if the latter exist.

Several types of companies follow an informal investment decision making process, such as small firms or those operating in the service sector (e.g., Ekanem, 2005; Danielson and Scott, 2006; Prather et al., 2009). For example, Danielson and Scott (2006) found that more than 60% of 792 small firms in the USA did not have a formal planning system for their capital investment decisions. This was because of the age of the firm and the owner (the younger they are the more likely they are to have written plans) and because of the educational background of the owner; the more highly educated, the more likely they are to have a written plan.

Formality involves the existence of a structure for the decision process. The early emergence of formal capital investment structures was through the standardized documentation of procedures (Northcott, 1995) which was followed by presenting a

specific order of steps to be tracked when making capital investment decisions (Burns and Walker, 2009). In the USA the use of standard forms had been consistently high and it grew from 84% to 97% over the period 1959 to 1970 (Klammer, 1972). Similarly, in the UK, Pike (1988) observed that the use of capital investment manuals in large firms had increased by 19% over a decade or so. The formal capital investment decision process (see Chapter Three) starts with the identification of an investment opportunity and ends up with applying project audit and evaluation techniques to the chosen and implemented investment (Mukherjee and Henderson, 1987; Burns and Walker, 2009; Hall and Millard, 2010). These steps are expounded upon below.

#### **4.2.1 Identification of the Investment Project**

The identification stage, despite its vital role in the investment process, has unfortunately attracted very few studies in the literature, none of which examined it in any reasonable depth (Burns and Walker, 2009). The little evidence that exists on company practice is very disparate, ranging from a 2% of firms in Istvan's (1961) study that made particular efforts to encourage ideas for capital expenditures, to between 82% in 1959 and 94% in 1972 in Klammer's (1972) study.

Two items in the identification stage, to the knowledge of the researcher, were empirically examined in the existing literature. The first is the "*time pattern of origination*". Istvan's study (1961) reported the importance of the time pattern of origination as there were three timing patterns for submitting the investment idea; only 14% periodically, 37%

continuously submitted ideas that previously were included in the overall capital budget, and 49% submitted investment ideas at any time.

The second item is the “*source of idea origination*”, where it was found that ideas and investment proposals were originated from bottom-up instead of top-down (Istvan, 1961; Mao, 1970; Petty et al., 1975; Stanley and Stanley, 1984; Farragher, 1986). Such as is the case in Mao’s (1970) study of financial executives; they did not originate ideas because packed plans and ideas were forwarded to them for evaluation from different departments to financial managers. A similar pattern was relayed by other authors; for example Petty et al. (1975) noticed that new ideas and plans commonly flowed from lower managerial levels; Stanley and Stanley (1984) found that more than 80% of the responding firms’ investment plans come from bottom-up; and Farragher’s (1986) study where 58% of the responding firms searched for investment ideas from their employees, while retail firms were the highest at 94%.

#### **4.2.2 Development of the Investment Project**

Investment ideas are screened before completed proposals are developed (Mukherjee and Henderson, 1987). The purpose of investment screening is to investigate whether the investment proposal is to be accepted or rejected. Overall, good progress has been made in the empirical literature regarding the development stage, particularly in the cash flow estimation, forecasting, and origination of biases on those processes (Petty et al., 1975; Ryan and Ryan, 2002; Alkaraan and Northcott, 2007; Burns and Walker, 2009).

The first item in the development of the investment project is “*the extent of project screening*”, which was examined through two approaches: a) the managerial or divisional level of the organization; and b) the size of the screened project or organization. Within the first approach, Istvan (1961) found that only 7% of projects were screened by the decision maker, 55% were screened by a non-specialist before forwarding to a decision maker, 27% were reviewed by a specialist or team, and 11% were reviewed by a specialist or team and then forwarded to the decision maker. Petty et al. (1975) found some dominance of the division and plant levels over the central office level in the screening process. More recently, more than 60% of the UK companies in Alkaraan and Northcotts’ (2007) study agreed/strongly agreed that lower level managers are involved in the strategic investment decisions.

Within the second approach, Ryan and Ryan (2002), for example, linked the size of the capital budget to the regularity usage of a particular assessment method where they found that 65% of respondents with capital budgets that ranged between \$100 and \$499.9 million used the net present value method. Gilbert (2003) linked the applied assessment method to the proportion of projects within the size of the organization; he found that 72% proportions of projects have applied the payback period technique in large firms in South Africa.

The second item is “*screening process*”, Pike’s (1996) four sequential studies in the UK showed that the percentage of companies that used formal evaluation procedure have increased; 93% in 1975, 95% in 1980, 100% in both 1986 and 1992 respectively.

Alkaraan and Northcott (2007) found that 89.2% of responding companies have formal procedures to evaluate strategic investment decisions. Klammer et al. (2002), in a comparison study between companies in the UK and USA, found that 90.6% of USA firms apply standard forms compared to 86.4% of UK firms.

The third item is “*forecasting and estimates*”, which several studies (e.g. Istvan, 1961; Pruitt and Gitman, 1987; Pohlman et al., 1988; Ryan and Ryan, 2002; Bennouna et al., 2010; Klammer et al., 2002) have provided empirical evidence about in a number of different firms. Pruitt and Gitman (1987), from the decision makers’ point of view, reported that 59.2% of respondents in large USA companies agreed that decision makers who evaluate forecasts consider them to be optimistic in estimates and adjust forecasts to correct them, while 67.8% agreed that decision makers tend to have more experience than forecasters who provide them with estimates. Pohlman et al. (1988), with regard to the availability of a standard procedure to generate cash flow estimates, reported that 85.3% of respondents in large USA firms agreed that their companies provided a standard procedure for cash flow estimates and 65.5% agreed that their companies require the usage of such procedures when forecasting cash flows.

The fourth item is “*personal responsibility for the project*”. For instance, 22.3% of the respondents in Pruitt and Gitman’s (1987) USA study stated that their companies had assigned the responsibility for project proposal preparation and project acceptance to the same individuals or group. In the UK, Alkaraan and Northcott (2007) have found that

40.9% of respondents have agreed/strongly agreed that top management judge the evaluation of strategic investments.

#### **4.2.3 Selection and Implementation of the Investment Project**

The first two items in the selection and implementation stage are the “*strategic importance of the project*” and the “*size of the project*”, which were investigated by a number of studies in terms of the expected age of the investment and the type of investment. For example, Farragher et al. (1999) found that 60% of companies in their study in the USA required a formal link between strategy and forecasts. In the UK, Pike (1996) found that 68% of respondents applied pre-decision controls on capital budgets that look beyond two years. In the USA, Pohlman et al. (1988) recorded six types of investment project categories: a general type (59%), facilities expansion (30.6%), acquisition of on-going concern (28.4%), new equipment (24.6%), facilities modernization (19.8), and replacement of equipment (10%). In a comparative study between the USA and Canada, Payne et al. (1999) found that, regarding the evaluation method of capital budgeting, projects were classified as follows: all replacement projects (41.5% Canada, 26.7% USA).

The third item is the “*personal responsibility for analysis*”. In the UK, 26% of Pike’s (1996) respondents agreed that there was at least one full-time person engaged in the capital budgeting. In China, Wei and Christodoulou (1997) found that 50% of respondents considered themselves responsible for making the foreign direct investment decision. Farragher et al. (1999) found that 55% of USA responding companies required an



independent management group to review investment analysis. Mukherjee and Hingorani (1999) found that 40.6% of USA respondents agreed that each division in the organization submits all positive-NPV proposals. In a comparative study, Carr (2006) found that respondents agreed that managers should do the job alone in a different range as follows: Japan (69%); Germany (87%), UK (78%); USA (83%); and Russia (53%). In the UK, a study by Alkaraan and Northcott (2007) showed that 40.9% of respondents agreed/strongly agreed that the evaluation of strategic investments was left to the judgment of top management.

The fourth item is “*determining project appraisal techniques*”, which Pike (1988) found that 71% of companies in the UK regularly reviewed hurdle rates. In the USA, Pohlman et al. (1988) found that 78% of respondents agreed that their companies had standard forms to collect cash flow data and other financial information. In the USA and Canada respectively, Payne et al. (1999) found that only 7.8% and 6.2% of respondents do not use discounted cash flows. In the USA, Farragher et al. (1999) found that 88% of respondents prepared their cash flow forecasts using company-wide procedures. In a comparative study of six countries, Kester et al. (1999) found that, regarding the use of high discount rates when evaluating risky investments, respondents’ replies varied as follows: Australia (37.5%); Hong Kong (19.1%); Indonesia (28.6%); Malaysia (23.5%); Philippines (51.6%); and, Singapore (37.8%). In South Africa, Gilbert (2003) found that regarding the applied appraisal techniques, 35% of respondents used two combined techniques, and 55% used a combination of discounted cash flows (DCF) and non-DCF techniques. Bennouna et al. (2010) found that 63.4% of respondents used multiple discount rates to

investment appraisal in Canada. In the UK, Alkaraan and Northcott (2007) found that 53% of respondents agreed that financial evaluation techniques are regularly used in the early analysis of investments, 53% strongly agreed that financial evaluation techniques are often used in the final choice of strategic investment, and 50.6% agreed that a strategic investment proposal will be rejected if its expected financial return did not meet the minimum requirements of return on investment.

Further, In the UK, Pike (1996) found that only 4% of respondents used the payback method as a single technique. However, this percentage reached 36% when the payback technique was combined with other methods such as IRR, and NPV. Farragher et al. (1999) in the UK found that 80% of respondents applied IRR, 78% the NPV, 52% the payback, and 34% only used the ROI. When applied appraisal techniques were linked to the type of investment, Klammer et al. (2002) found that 58.3% of USA and 50.8% of UK respondents applied DCF methods when investing in replacement projects, while 9.4% of USA and 30.5% of UK respondents considered the PB method when investing in Hi-Tech investments.

Carr (2006) found that 40% of UK, 50% of Germany, 14% of USA, and 69% of respondents in Japan applied PB method. Sangster (1993) found that in Scotland, with regard to considering a single method: PB (14%); IRR (4.5%); NPV (3%) and, ARR (2%). Danielson and Scott (2006) linked the appraisal technique to the cash flow projection made, as they found that 23% of USA respondents applied PB, while 15% considered ARR. Ryan and Ryan (2002) in the USA, most responding companies have preferred the

usage of DCF techniques over Non-DCF methods when evaluating investments; 49.8% considered NPV, 44.6% applied IRR, 19.4% used PB, and only 5.3% considered ARR. In South Africa, Gilbert (2003) found that 67% of companies applied PB, 68% considered ROI, 51% ARR, 61% NPV, and 62% IRR. In Cyprus Lazaridis (2004) found that 11.4% of respondents applied NPV, 8.7% IRR, 36.7% PB, and 17.7% ROI.

The importance of the fifth item “*risk assessment*” has been highlighted in the literature either by stressing the availability of risk assessment or by emphasizing risk assessment techniques applied in respondents companies. Farragher et al. (1999) found that 55% of USA respondents required a quantitative risk assessment to their capital investments. Kester et al. (1999) found that with regard to applying sensitivity analysis: 100% in Australia as well as in Hong Kong, 88% in Indonesia, 83% in Malaysia, 94% in Philippines, and 79% in Singapore. Payne et al. (1999) found that 60% of Canadian respondents applied sensitivity analysis compared to 52.2% of respondents in the USA. Klammer et al. (2002) found that USA respondents who considered sensitivity analysis were 69.3% compared to 84.8% of UK respondents. Bennouna et al. (2010) found that 92.8% of Canadian respondents considered sensitivity analysis. In Cyprus, Lazaridis (2004) 31.7% of respondents apply total statistical risk analysis to their capital investments.

The sixth item is “*capital rationing process*”, which Mukherjee and Hingorani’s (1999) study highlighted the reasons for in US companies. Their results indicated that capital rationing was practised for several reasons: a) when senior managers cannot trust project

forecasts and when the project's downside risk is large (53%), b) to preserve borrowing capacity to finance potentially high-NPV projects in the near future (50%), c) to discourage biased cash flow forecasts (46%), and d) firms are more likely to reject a positive NPV project when it is non-routine/unique in nature (42%). Kester et al. (1999) found that capital rationing was common in more than half of the their sampled companies in Indonesia and the Philippines practised, while most of the respondents from Australia, Hong Kong, Malaysia, and Singapore indicated did no ration capital.

The seventh item is "*knowledge of the appropriate cost of capital*", which was highlighted in different countries by a number of studies. For example, Klammer et al. (1991) found that 72% of USA respondents agreed that dollars available for capital expenditures were predetermined and 71% had formal calculation of the cost of capital. Kester et al. (1999) found that 72.7% of Australian respondents based their capital asset pricing model (CAPM) on the companies' estimated beta, 53.8% of respondents from Hong Kong dividend yield plus growth rate, and 58.6% of Philippines as well as 53.4% of Indonesian respondents used the cost of debt in addition to risk premium to determine the cost of capital. In the USA, Ryan and Ryan (2002) found that 83.2% of respondents chose the weighted average cost of capital (WACC) and 7.4% chose the cost of debt to be considered to be the discount rate in their companies. In Cyprus, Laziradis (2004) looked at factors that determined the cost of capital for investors' financing and found that 30.9% of respondents agreed on the cost of borrowing, 26.2% considered past experience, and 20.2% took into account the cost of equity capital. Recently, Bennouna et al. (2010) have

reported that 76.1% of respondents in Canada use WACC, 9.89% apply the cost of debt, and only 1.4% uses the cost of equity to calculate the discount rate.

The eighth item is “*approval of project*”. In Cyprus, Laziradis’s (2004) reported that 81% of respondents used capital budgeting techniques to evaluate investment projects for approval. Alkaraan and Northcott (2007) found that 75.9% of investigated companies in the UK agreed/strongly agreed that the investment project would not be approved if the expected financial return did not meet the minimum requirements of return on investment. Finally, regarding the “*implementation of the investment project*”, Bryde (2003) found that 58.6% of responding companies in the UK considered project selection to be a documented project management procedure and 79% considered project start up to be one of these procedures. Nutt (2007) found that 90% of respondents in the USA believed that implementation of a project led the analysis to evaluate an investment while 65% believed that project implementation followed the analysis for evaluation.

#### **4.2.4 Evaluation of the Investment Project**

The steps in the project (post-implementation) evaluation stage could be categorized into two groups; the first is linked to individuals involved in the evaluation and implementation of the capital investment project, and the second group is related to the commencement of project audit to evaluate the performance of the capital investment project. Within the first set, the “*clarity of roles in project evaluation*”, the “*effective use of team-based performance measures*”, and the “*effective use of performance incentives*” could be included. As for the second set, the “*use of project audit*”, the “*quality of project*

*audit process*”, the “*assessment of audit reports*”, and the “*response of project manager to audit report*” could be included.

Existing studies show that companies assess capital projects after implementation either through post-audit or any type of evaluation techniques. For example, Gordon and Myers (1991) in the USA found that almost 76% of respondents conducted post-audits of capital projects in their companies, while 47% had regular post audit. Pike (1996) found that 92% of UK respondents have evaluated approved projects when the cost over-run, while 72% required post-completion audits on most major projects. In the USA, Farragher et al. (1999) found that 88% of respondents have conducted post-audits on a regular basis. In Italy, Azzone and Maccarrone (2001) found that 70% of companies applied post-audit to their investment projects.

Klammer et al. (2002) found that respondents in the USA (90.6%) and the UK (79.7%) have agreed that different capital projects; construction, installation, or buying new capital projects were monitored, while major capital projects were post audited in the USA (74.8%) and (79.7%) in the UK. Bryde (2003) in UK found that 82.8% of organizations monitored and controlled a project as part of their project management activity. Bennouna et al. (2010) found that 84.5% of companies have conducted post audits for major capital investment projects in Canada. Hall and Millard (2010), in South Africa, found that 7.2% of respondents considered project review as a most difficult stage in the capital budgeting process.

Further, Myers et al. (1991) in the USA linked the usage of sophisticated techniques in post-audits to the improvement of firm performance. Their results indicated that of 232 firms, 65 were classified as using sophisticated post-audit techniques such as discounted cash flow techniques, which required regular periodic reviews of assets and had documented review procedures. Their findings, as well, supported the argument that amongst firms that were recognized to face poor performing assets, the usage of sophisticated post-audit procedures influenced the firm performance positively.

The literature has identified different bodies that often play a clear “*role in project evaluation*”. For example in the USA Gordon and Myers (1991) distinguished between three groups of evaluated assets linked to different managers’ level: operating assets are evaluated by lower level managers, administrative assets are within the responsibility of middle managers, and strategic assets are evaluated by senior managers. Other studies have found that responding companies in different locations usually assign one member of the staff to be fully responsible for the investment project, such as Kalmmer et al. (1991) in the USA (55%), Pike (1996) in the UK (23%), Farragher et al. (1999) in the USA (88%), Klammer et al. (2002) in both the USA (35.4%) and the UK (11.9%), Carr (2006) in Japan (32%), Germany (36%), UK (48%), USA (54%), and Russia (69%), and Bennouna et al. (2010) in Canada (52%). Further, it is found that investment projects are often reviewed or evaluated by a group of managers, such as Farragher et al. (1999) results in the USA (55%) or by the top management such as Alkaraan and Northcott (2007) results in the UK (40.9%).

The second and third items; “*effective use of team-based performance measures*” and “*performance incentives*” were examined either independently or jointly. Independently, Pike (1996) found that 84% of observed UK companies monitor project performance once operated. Bryde (2003) found that 72.4% of UK firms review performance. Carr (2006) found that responding companies in different countries apply performance orientation; in Japan (4.2%), in Germany (4.3%), in the UK (4.1%), in the USA (4.5%) and in Russia (3.3%). Regarding performance incentives, Carr (2006) found that individuals in different countries received a credit for accomplishing the job; in Japan (43%), in Germany (62%), in the UK (70%), in the USA (72%), and in Russia (86%).

Both items were found to be considered jointly, for example, Scott and Tiessen (1999) found that 64.5% of respondents used non-financial performance measures compared to 45.5% that used financial measures, where a combination of both types of measures was used more often (40.7%) than just one type of a measure alone (28.6%). This arrangement of performance measurement was strongly associated with the proportion of the time members have spent in intra-and-inter-departmental teams. Bouwens and Lent (2006) found a significant positive correlation between the total effect of incentive contracts and its associated variables, available cash bonus, and performance measure properties, as the available cash bonus and performance measure properties were associated with the selection effect of incentive contracts in Dutch firms.

Further, Wulf (2007) found that performance of division managers has increased in terms of the division sales growth and the firm sales growth in the USA, when the division



manager's bonuses were linked to division performance measures over which the manager has greater control relative to firm performance measures. In addition, by focusing on the annual salary and bonus paid to division managers as performance incentives, she found that salary plus bonuses of division managers with officer status were more sensitive to firm sales growth. Also, she found that there was no difference in performance incentives between division managers that are close in proximity to the CEO and those that are further down the hierarchy.

The fourth item is "*quality of the audit*", which Ireland (2003), for example, had noticed that high quality auditors were more likely to attract high quality clients and large auditors in the UK had the motivation to provide a higher audit quality because they had more wealth and a reputation to protect. Lin et al. (2003), in China, found that a qualified auditor opinion had a negative impact on users' assessment of the credibility of financial data, as it might lead users to consider the financial statement as relatively less credible. Francis (2011) recently suggested several factors that might influence the improvement of the audit quality: 1) individuals who implement audit tests should be competent and independent, 2) the testing procedures used should be capable of producing reliable and relevant evidence, 3) the capability of the engagement team personnel to make good decisions regarding the specific tests to be implemented 4) the evidence from these tests could be appropriately evaluated in leading to the audit report, 5) the testing procedures used on audit engagements, and incentives that affect the behaviour of engagement team personnel which are developed by the accounting firm that auditors work in, 6) auditors and accounting firms should be punished by institutions for misconduct and low-quality

audit, and, 7) the economic consequences of audit outcomes as audit outcomes influence clients and users of audited accounting information.

Regarding the fifth item, “*assessment of project reports*”, Innes and Lyon’s (1994) in the UK found that 70% of managers rely on the financial audit report only, 72% rely on favourable management audit report, and 54% rely on adverse management report. In China, Lin et al. (2003) found that although the qualification of audit reports would not have a significant impact on the decisions made by investors or creditors, it might influence their assessment of the credibility of financial statements. Ireland (2003) found that company’s management regularly made the choice to select the auditors instead of the shareholders in the UK. Therefore, auditors had not been randomly assigned to companies but chosen by them, which might result in a self-selection bias. He analysed both public and private companies to examine whether company status would influence audit report outcomes, he found that public companies were significantly less likely to receive non going-concern related audit modification than private companies, and subsidiary companies were found to be significantly less likely to receive non going-concern related audit modifications than independent companies. Further, he found that in subsidiary companies, large auditors were negatively associated with non-going-concern related modifications, while large auditors were positively associated with going-concern related modifications in independent companies.

A final topic related to project audit and evaluation of capital investment is project audit steps. It is found that different steps were suggested from different firms, although they all

fall into three basic steps: 1) planning the audit, 2) performing auditing tests, and, 3) reporting the findings. For example, the institute of internal auditors (IIA, 2011) in the USA and Canada has suggested six steps for applying a continuous auditing: 1) establish priority areas, 2) identify monitoring and continuous audit rules, 3) determine the process' frequency, 4) configure continuous audit parameters, 5) follow up, and 6) communicate results. Putra (2009) identified six steps for auditing: 1) audit planning, 2) gathering related information, 3) assessing risk, 4) designing the audit response, 5) perform further audit procedures, and, 6) evaluate audit findings. Azzone and Maccarrone (2001) suggested four steps for post-audit: 1) identifying the cycle of activities carried out, 2) knowing the kind of data analysed, 3) recognizing the source of information and the gathering tools, and 4) classifying the structure, the content and the diffusion of reports.

#### **4.3 Brief Historical Development of Studies of De-(Escalation) of Commitment**

In the escalation/de-escalation literature, the development of studying empirical variables does not differ from the theoretical studies development (as explained in section 3.4 in chapter three) in terms of being largely fragmented and detached, because these variables were mostly drawn from different theories, and were selected to examine the credibility of suggested theoretical models. Therefore, they ranged across several disciplines such as psychology, social, finance, and culture (Rubin and Brockner, 1975; Arkes and Blumer, 1985; Simonson and Staw, 1992; Keil et al., 2000; Wong, 2005; Pan et al., 2009; Winch, 2013) through the last five decades (Table, 4.1).

The chronology of empirical studies shows that in the 1970s researchers became aware of the escalation/de-escalation phenomenon, where it became a research topic that people investigated in laboratory settings to simulate the existence of the problem. In this period, it is noticed that a limited number of variables were tested in a direct simple form. In the 1980s, the interest in this phenomenon has intensified where the effort was more than doubled, publication wise. Besides the more attention the escalation/de-escalation phenomenon obtained in examining its existence in real life cases, authors based their studies whether in laboratory settings or real cases on examining more variables with more complicated settings. In laboratory experiments, the trend was to examine indirect relationships through a moderator/mediator, while in case studies, the trend was to classify and categorize several variables into groups of determinants.

The bulk of studies, both laboratory base and real life cases have been published from the 1990s onwards. This coincides with the significant changes in the business landscape that impacted on capital investment decisions e.g. increased competition and implying new technologies. Therefore, it could be stated that the escalation/de-escalation phenomenon after it got the attention of authors through laboratory experiments, which then paved the way for studies based on real life cases.

**Table 4.1: Escalation/De-Escalation Studies in the Last Five Decades**

<i>Type of studies</i>	<i>1970s</i>	<i>1980s</i>	<i>1990s</i>	<i>2000s</i>	<i>2010s</i>	<i>Total</i>	<i>Percentage</i>	<i>Cumulative %</i>
Empirical								
Laboratory	6	15	37	35	12	105	78%	59.28
Case studies	-	2	11	10	3	26	19%	14.44
Other	-	-	1	3	-	4	3%	2.28
<i>Sub-total</i>	<i>6</i>	<i>17</i>	<i>49</i>	<i>48</i>	<i>16</i>	<i>135</i>	<i>100%</i>	<i>76%</i>
Theoretical	-	12	18	10	3	43	24%	24%
<i>Total</i>	<i>6</i>	<i>29</i>	<i>67</i>	<i>58</i>	<i>19</i>	<i>178</i>	<i>100%</i>	<i>100%</i>

#### **4.4 Studies that Examined Empirical Variables Separately**

Studies under this category were mostly conducted through laboratory settings, focused on examining variables that were under the authors' control to explain the occurrence and persistence of managers' choices to face problematic projects either directly or indirectly (Section 4.4.1). Escalation/de-escalation authors have been interested in examining the direct effect since the mid-seventies, whereas the indirect influence has received early attention since the 1980s to the current, which is based on examining the moderating/mediating effect of selected variables on the escalation/de-escalation decisions. Additionally, few studies were interested in examining the existence of the phenomenon through variables that researchers did not have any control over through either applying the case study approach, which started in the mid-eighties or through other methods such as telephone interviews in the late-nineties (Section 4.4.2). Both sections will be reviewed as follows.

##### **4.4.1 Controlled Empirical Variables**

As mentioned earlier, the essential feature that escalation/de-escalation authors who examined controlled empirical variables separately shared is that their studies were conducted in laboratory settings, (e.g., Rubin and Brockner, 1975; Leatherwood and Conlon, 1987; Keil et al., 1995), which allowed these authors to control the influence of several variables on the occurrence and persistence of the escalation/de-escalation phenomenon (97 study out of 136). Additionally, few attempts were made to explain this phenomenon through field surveys or interviews (Garland et al., 1990; Wong et al., 2006; O'Neil, 2009; Lee et al., 2012). This explanation was either examined directly (Boulding

et al., 1997; Rao and Monk, 1999) or indirectly (Rutledge, 1995; Brody and Kaplan, 1996).

### **1. Direct Influence Variables**

According to this category, the decision to escalate/de-escalate occurred as a result of the consistency and interaction of several forces that influenced the incidence and persistence of the phenomenon (see Table 4.2)<sup>1</sup>, which can be expressed through two main categories: the characters of the decision maker and aspects or consequences of the decision.

Regarding the first category, it is noticed that the escalation/de-escalation phenomenon was explained from four different dimensions that were introduced in the literature. Initial or personal responsibility was the first dimension that received strong attention (e.g. Staw, 1976; Barton et al., 1989; Jeffery, 1992; Slaughter and Greguras, 2008). Within this dimension, it is assumed that when managers receive negative feedback regarding a project they were initially responsible for, they are more motivated to justify their earlier decision in terms of escalating their commitment to that project (Schultz and Cheng, 2002; Biyalogorsky et al., 2006), which was explained in the previous chapter through the self-justification theory. The second dimension was the level that the decision was made on i.e., whether the decision was made on an individual or group level (e.g. Bazerman et al., 1984; Whyte, 1993; Zhiyuan and Qing, 2008). It is assumed that when the decision was made by a group of managers their tendencies to escalate would be less than if the decision was made by an individual, as group decision-making would result in the

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<sup>1</sup> For a detailed display of studies of this category see Table 1 in Appendix C

diffusion of responsibility among members for any negative outcomes, which leads to less self-justificatory influence as the blame would be shared and therefore results in the reduction of the escalation of commitment (Whyte, 1991; Citera et al., 2000).

The third dimension is managers' nationality (Keil et al., 1995; Harrison et al., 1999; Salter et al., 2004), where from the mid-1990s several authors were interested in understanding whether the escalation/de-escalation decision would differ if managers from different cultures would make these choices. In addition to the USA, where the phenomenon was first academically highlighted, other authors studied managers' behaviour in these circumstances in the UK (Ku, 2008), in Finland (Keil et al., 1995), Asia and North America (Sharp and Salter, 1997), China (Garland and Conlon, 1998; Harrison et al., 1999), and Mexico (Greer and Stephens, 2001; Salter et al., 2004). In addition, other variables that were related to managers' nationality, but received less attention such as self-values (Sivanathan et al., 2008) in the USA, unpleasant emotions (Wong et al., 2006) in Hong Kong, and internal locus of control (Singer and Singer, 1986) in New Zealand.

The fourth dimension that escalation/de-escalation authors explained and was related to the decision maker's characteristics is managers' concern about their own self-interest as they favour achieving their own personal gains (Harrison and Harrel, 1993; Sharp and Salter, 1997; Rutledge and Karim, 1999). If the project's manager had private information, his/her actions were not completely monitored, and information asymmetry prevailed, these circumstances together would allow for the existence of goal conflict between the company's owners and project's manager, which would lead the project manager to save

his/her own reputation or future career opportunities and act in his/her own interest even if these acts might cause the escalation of a problematic project (Harrison and Harrel, 1993).

**Table 4.2: A Chronology of Controlled, Separate and Direct Variables**

<i>Time Period</i>	<i>Number and Place of Studies</i>	<i>Theoretical Approach</i>	<i>Variables Examined</i>
1970s	6 studies, USA	Approach-Avoidance Self-Justification External-Justification	Decrement, Salience, Queue positions, Personal responsibility, Initial responsibility, Efficacy of resources, Time, Prior experience, Prior limit setting, Process of resource Allocation, Job insecurity.
1980s	13 studies, USA	External-Justification Self-Justification Modeling Effects Sunk Costs, Attribution Reactance, Self-Identity Goal-Attainment	Social anxiety, Gender, Decision type, Importance of rewards, Personal responsibility, Choice, A third party to blame, Persistence of setback, Decision context, Initial responsibility, An escalation model, Alternative investment, Financial information, Probability of future success, Attribution of decision performance, Locus of control, Goal origin, Information frame.
1990s	33 studies, USA, Canada, France, Finland, Singapore, Taiwan, Asia, China.	Sunk costs, Prospect, Self-Justification Reinforcement cognitive dissonance Project completion Agency, Mental budgeting, Self-Image Capital Budgeting Self-Efficacy Goal-Substitution Behaviour Momentum External-Justification Decision Dilemma	Sunk costs, Initial responsibility, Ambiguity, Time, Threat, Goal setting, Self-diagnostic, Decision outcome and process, Accountability, Experience, Different relationships, External justification, Information frame, Project completion, Information disclosure, Decision context, Personal gains, Alternative risk, Prior commitment, Reinvestment risk, Nationality, Alternative investment, Opportunity cost, Internal rate of return, Net present value, Mental budget, Expected benefits, Education level, Motivation, Anonymity, Equivocality, A standard which information may be judged against, Budget goals, Incentives, Moral reasoning.
2000s	22 studies, USA, Mexico, Australia, Singapore, Hong Kong, UK, China.	Group Decision Making, Goal Completion, Self-Justification, Escalation, Cognitive Dissonance, Agency, Prospect, Equivocally, Cognitive bias, Self-Affirming, Learning, Self-Efficacy, External-Justification, Status Queue Bias.	Personal responsibility, Decision context, Sunk costs, Sales price, Project completion, Nationality, Time, Information source, Product innovativeness, Information source credibility, Stage of new product development, Initial responsibility, Information asymmetry, Prospective additional investment, Prospective multi stage budget, Hurdle rates, Information frame, Personal gains, Personal involvement, Information time, Momentary, Illusion of control, Self-esteem, Self-values, Task relevance affirmation, Post regret, Self-efficacy, Risk, Alternative investment, Decision difficulty, Decision procedures.
2010s	9 studies, USA Australia, Iran, Taiwan, Mexico, Germany, Canada, China, Malaysia Hong Kong, India, Pakistan, Singapore.	Agency, Cognitive Dissonance, Prior Involvement, Real Options, Self-Regulation, Terror Management, De-Escalation, Culture, Self-Justification, Prospect.	Monitoring control, Information disclosure, Project performance, Certification, Auditor involvement, Client pressure, Real option, Net present value, Personal responsibility, Activated motivations, Mortality salience, Accountability, Choice, Personal gains, Long term orientation, Uncertainty avoidance, Individualism, Culture, Decision context, Information frame.



Regarding decision circumstance, sunk costs were the most studied force to explain managers' choices in conflict situations (Arkes and Blummer, 1985; Garland and Newport, 1991; Heath, 1995; Heng et al., 2003). Authors who examined this factor relied on the assumption that project managers would often consider past expenditures when making current decisions (Staw and Hoang, 1995). This consideration becomes more significant when an investment fails, as the impact of the sunk costs would be taken into account so the project manager would add more resources (escalate commitment) to avoid wastage of invested resources (Arkes and Blummer, 1985; Zhiyuan and Qing, 2008).

The second force that could be linked to the decision circumstance, which grasped the attention of escalation/de-escalation empirical authors, was the consequences or framing of the condition (Staw, 1976; Brockner et al., 1981; Garland, 1990; Chow et al., 1997; Biyalogorsky et al., 2006). From studies conducted earlier (Staw, 1976), this factor was believed to influence the manner in which managers would make their escalation/de-escalation decisions, where managers when faced with negative conditions would be more risk-seeking and therefore escalate problematic projects than when faced with positive consequences (Whyte, 1997; Chow et al., 1997).

## **2. Indirect Influence Variables**

Within the indirect relationship, the decision to escalate/de-escalate occurs, in addition to the interaction of several factors, as a result of the indirect influence of variables that moderates/mediates this relationship<sup>2</sup> (Conlon and Wolf, 1980; Brody and Kaplan, 1996;

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<sup>2</sup> For a detailed display of studies of this category see Table 2 in Appendix C

Wong, 2005; Denison, 2009). By the time a mediator represents the mechanism whereby the principal independent variable is able to influence the dependent variable the moderator divides the principal independent variable into subgroups, which would establish the areas of greatest effectiveness with regard to a given dependent variable (Baron and Kenny, 1986).

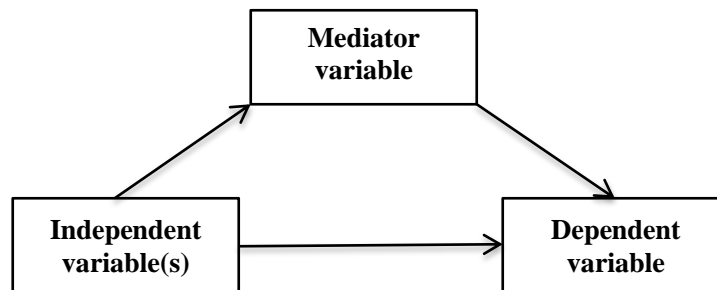
Both moderators and mediators share one similarity as they represent functions of a third variable, yet several differences are noticed between moderators and mediators that can, as suggested by Wu and Zumbo (2008: 383) be displayed in Table 4.3 below.

**Table 4.3: Distinction between Moderators and Mediators**

<i>Concept</i>	<i>Moderator</i>	<i>Mediator</i>
Nature of variable	Is a trait that is a relatively stable characteristic, innate attribute, enduring process, or disposition.	Is a state that is a temporary condition of mentality or mood.
Function in a causal relationship	A third variable that modifies a casual effect	A third variable that links a cause and an effect
Type of question	For whom and when cause and effect occurs	How and why cause leads to effect
Role in a causal relationship	Single role: auxiliary independent variable for y	Dual roles; dependent variable for x, independent variable for y
Sequence of operation	Precedes both independent and dependent variable	Follow independent variable and precedes dependent variable
Relationship with independent variable	Un correlated with independent variable	Correlated with independent variable
Design control	Typically observed	Manipulated or observed

A mediator is usually predicted by the independent variable that aims to explain why and how the effect between the explanatory variable(s) and the dependent variable would occur (see Figure 4.1). The mediator effect exists if the following conditions are met: a) variations in the explanatory variable(s) predict variations in the mediator variable b) variations in the mediator variable predict variations in the dependent variable, and c) when the relationships in a) and b) are controlled in the model, the direct relationship

between the independent variable(s) and the outcome variable becomes nonsignificant (Baron and Kenny, 1986; Bennett, 2000).



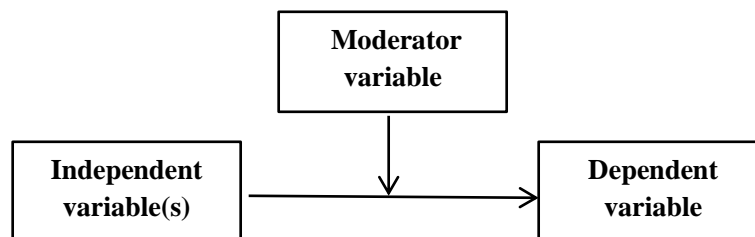
**Figure 4.1: Mediator Effect Model**

In this regard, from the year 2000 upwards (see Table 4.3); more attention was given to the mediating effect. Several examples were presented in the escalation/de-escalation empirical literature to demonstrate this influence (e.g., Moon et al., 2003; Cuellar et al., 2006; O'Neill, 2009). Mediating variables in the escalation/de-escalation literature, were related to the focal independent variable, for example, in both studies by Keil et al. (2000) in the USA and Wong (2005) in Hong Kong the suggested mediator variable was risk perception, which is correlated to risk propensity (the independent variable). Cuellar et al. (2006) examined whether the relevance of the message given by the auditor (the mediator), which is linked to the auditor's credibility (focal independent variable) in the USA. Schulz-Hardt et al. (2009) examined the mediating influence of responsible preference where the focal independent variable was that of personal responsibility in Germany.

Conditions of the mediation effect, in terms of the mediator's relationship with the independent and the dependent variables, were each separately met in these studies. For

example, in the study by Moon et al. (2003), all three mediating conditions were established (p.72): a) the mediator (decision confidence) was retreated on the independent variable (decision process) and the mediator *"groups whose members made prior individual decisions were less confident in their decisions"*, b) the dependent variable (incremental amount) was retreated on the independent variable *"groups whose members made prior individual decisions allocated more"*, and c) the dependent variable was retreated on both the independent variable and the mediator *"the path between decision process and commitment was significantly lower in the mediated condition than in the non-mediated condition"*.

Otherwise, a moderator is a separate independent variable that influences the direction and/or strength of the relationship between the independent variable(s) and the dependent variable (see Figure 4.2), i.e., the moderator interacts with the independent variable(s) so that the relationship between the independent variable(s) with the dependent variable is stronger or weaker at different levels of the moderator variable (Baron and Kenny, 1986; Bennett, 2000). Therefore the relationship between the independent variable(s) and the outcome variable depends on the value or level of the moderator variable (Cohen and Cohen, 1983).



**Figure 4.2: Moderator Effect Model**

In this regard, escalation/de-escalation authors who were interested in examining the moderator effect have selected variables to act as moderators (see Table 4.3) that were not only independent, but were not derived from the focal independent variable (e.g., Conlon and Wolf, 1980; Brody and Kaplan, 1996; He and Mittal, 2007). For example, Rutledge (1995) in the USA examined the moderating influence of the manner in which the information was framed and the focal independent variable was group decision-making. Heng et al. (2003) studied the moderating effect of the level of sunk costs and independent variables were individuals and approach. It is noticed that because the influence could be measured through the value or levels of the moderator, escalation/de-escalation authors who examined this influence have provided several levels of the moderator, for example, high and low degrees of project risk (He and Mittal, 2007), high and low degrees of sunk costs (Heng et al., 2003), and months of experience as internal audits (Brody and Kaplan, 1996).

According to Baron and Kenny (1986), testing the moderation effect could be achieved through several methods. The simplest one is where the moderator and the independent variable would interact to cause the dependent variable. Therefore, it is worth mentioning that although the studies that examined the moderation effect might seem few (only seven out of eighteen) in the escalation/de-escalation literature for the time it arose in the early 80s (see Table 4.4). It could be argued that all empirical studies that were established in a laboratory context from the mid-70s up to now have to a certain extent examined the moderation effect.

**Table 4.4: A Chronology of Controlled, Separate and Indirect Variables**

<i>Time Period</i>	<i>Number and Place of Studies</i>	<i>Theoretical Approach</i>	<i>Variables Examined</i>	<i>Moderator/Mediator</i>
1980s	1 study, USA	External-Justification Self-Justification	Involvement, cause of setback.	Strategy.
1990s	2 studies, USA.	Prospect, Personal-Involvement	Group initial responsibility, Personal responsibility.	Information framing, Level of internal audit experience
2000s	13 studies, USA, Finland, Netherlands, Singapore, Hong Kong, China, Germany.	Risk, Self-Justification, Group Decision Making, Mental Representation, Cognitive Dissonance, Sitkin-Pablo model of risk taking, External-Justification, Heuristic-Analytic, Project Completion, Real Options, prospect, Social Information processing, Appraisal theories of Emotion.	Nationality, Sunk costs, Risk propensity, Approach, Individual, Previous performance, Project completion, Decision process, Assigned purpose, self-monitoring, Justification, Consultation of a third-party, Assigned purpose of consultation, Personal responsibility, Risk propensity, Outcome expectancy, Auditor credibility, Gender, Age, Need for information, Rational thinking style, Capital budgeting, Time, Anger and Quilt feeling, Alternative project, Assessment of preferences, Decision evaluation, Attributes, Participation.	Risk perception, Sunk costs, Decision confidence, Knowledge score, Relevance of message, Project risk, Strength of prior beliefs, Cognitive possibility of project abandonment possibility, Psychological safety, Anticipatory emotions, Responsible participants' preferences, Vicarious self-justification.
2010s	4 studies, USA, India.	Risk Perception, Goal Completion, New Product Development, Goal Setting theory	Fear, Anger, Free draws, Sunk costs, Personal responsibility, Goal difficulty, Goal specificity, Project completion.	Risk perception, Goal proximity, Reward for success, Commitment to a budget and schedule goal

For example, in Staw's (1976) initial work, high and low personal responsibility were interacted with positive and negative decision consequences, Singer and Singer (1986) have interacted initial responsibility (high/low) with locus of control (internal/external), Harrison and Harrell (1995) manipulated the presence and absence of initial responsibility with the capital budgeting techniques (internal rate of return/net present

value), and Schultz and Cheng (2002) interacted high and low initial responsibility with present and absent information asymmetry to measure the influence of interactions, of each study on its own, on the escalation/de-escalation decisions.

This rule could be applied to all laboratory-based studies. However, there are two reasons for not considering those studies as examples for the moderation effect:

1. None of those studies have distinguished between the moderator and the focal independent variable as both were treated as independent variables that had the same influencing interacting chance to cause the existence of the escalation/de-escalation phenomenon. For example, in an early study by Rubin and Brockner (1975: p. 1058), they stated "*three treatment variables were incorporated into a completely between-subjects 2x2x2 factorial design: decrement., salience., and queue position*". An additional example that illustrates the absence of determining the moderator variable, is in a study by Jani (2008; p.728), who stated "*the experimental design was 2x2x2x4 mixed factorial design with between-subjects manipulations of project risk factors., and initial task-specific self-efficacy*".
2. The moderation assumption was never introduced in those studies neither when developing their hypotheses nor when displaying their results. For example, Chow et al. (1997) when examining the influence of personal responsibility, information frame, and nationality on managers' decisions in China, developed three hypotheses where none referred to a moderator influence (p. 350-351) "*h1; individuals who had prior responsibility... are more likely to invest additional resources., h2; individuals who are presented with negatively framed information... are more likely to invest additional resources., and h3; Chinese nationals are more likely to invest additional resources...*", their results indicated (p.357-358): "*weak statistical support for the importance of initial responsibility and framing...Chinese subjects were more risk-preferred*". Fox et al. (2009) examined the influence of the availability of alternatives and difficulty of decisions on managers' choices in the USA, as they hypothesized that

(p. 434): *"people will more frequently opt for persisting with the same failing project when (a) equally attractive options are available; (b) the number of the equally attractive options increases and (c) the available options consist of unique negative attribute"*. Their results indicated that when managers had the choice to either continue the original failing project or equally choose between equally attractive investments (potentially more profitable than the original project), they were more likely to reinvest in the original project.

#### **4.4.2 Uncontrolled Empirical Variables**

The starting point for studies under this category was laboratory-based research, which took place during the first 10 years to uncover and discover as many relevant factors that influence the existence of the (de)-escalation phenomenon before any attempt to investigate real life cases (see Table 4.1). In fact, the bulk of examining real life cases (24 studies out of 26) was in the period from the 1990s up to now (after 20 years of laboratory based studies) for the (de)-escalation concept and ideas to mature and shape-up, to capture variables in real life situations (e.g., Bondt and Makhija, 1988; Ryan, 1995; Drummond, 1998; McElhinney and Proctor, 2005; Mährang and Keil, 2008; Pan et al., 2009).

The majority of real life research concentrated on exploring factors and forces of the (de)-escalation phenomenon in case studies (see Table 4.5)<sup>3</sup> particularly operating in the service sub-sector field whereas only one study was found that investigated a Nuclear Power Plant in the USA (Bondt and Makhija, 1988). The service companies investigated have varied to include several businesses, for example, information technology projects' decisions (Drummond, 1998 in the UK; Montealegre and Keil, 2000 in the USA),

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<sup>3</sup> For a detailed display of studies of this category see Table 3 in Appendix C



decisions linked to athletics and games (Staw and Hoang, 1995; Bourgie, 2001 both in the USA), and information systems projects' decisions (Pan et al., 2009) in the UK.

**Table 4.5: A Chronology of Uncontrolled and Separate Variables**

<i>Time Period</i>	<i>Number and Place of Studies</i>	<i>Theoretical Approach</i>	<i>Variables Examined</i>
1980s	1 study, USA	Prospect theory	Sunk costs, Average return, Project completion, negative information
1990s	7 studies, USA, UK.	Multi theoretical approach, Single-option paradigm, Sunk costs, Prospect, Decision dilemma, Escalation, The mum and deaf effect.	Personal responsibility, Lack of goal congruency, Negative framing, Information asymmetry, Anger, frustration feelings, Face saving, Non-achievable goal, Risk involved, Justification, Face saving, Sunk costs, Investors' beliefs about the course of action, Investors not to be embarrassed, Expectations are not met, Paucity of information, Socially motivated, Technical difficulties, Less tolerance for failure, Awareness of problems, Publicly stated limits, Clear success and failure criteria, Outcome oriented evaluations, Regular evaluations of projects, Separation of responsibility for approving and evaluating projects,
2000s	11 studies, USA, UK, Canada, Denmark, Europe.	Theory-building approach, Multi theoretical model, Self-External-justification, Sunk costs, Intervention-Avoidance, Lewin's Change theory, Approach-Avoidance, Montealegre & Keil's De-Escalation Model, Narrative, Visual mapping, Psychological factors	Problem recognition, Re-examining prior course of action, Alternatives, Implement an exit strategy, Psychological self-justification, Social self-justification, Sunk costs, Goal incongruence, Completion effect, Information asymmetry, Managers being successful, achieving, clever, Being respected, Age, Salary, Individual, club performance, managing style, Monitoring, Change in decision responsibility, and control variables (borrower relationship characteristics, prior size of loan, previous performance of a branch, and branch size), Internal resistance, Powerful product champions, Limited knowledge of capital costs or ongoing revenue costs, Lack of knowledge of the level of risk, No stated project objectives, Worry of punishment, Managers loss of control, Monitoring, Restructuring, Reward for success, Cost of withdrawal, Cost of persistence, Ambiguity, Noticeable role for communicators during the project, Goal conflict, Management incapable to determine problems, Ambiguous, Asymmetry, Implementation mind-set, Locus of control, Preference for consistency, Time urgency.
2010s	1 study, UK.	Leadership, Politics and Interpersonal.	Provision of psychological safety, Personal appeal Consultation, Agile mobilization, Re-establish legitimacy and stakeholder commitment, Continues empowerment.

Besides, few survey attempts were made from the late 1990s by escalation/de-escalation authors, which were built on laboratory studies that have helped getting the empirical

work started by identifying key variables and factors that were later examined in real cases. These attempts aimed, building on knowledge, to investigate the (de)-escalation phenomenon through a wider-range and generalize obtained results. Only three surveys were found, to the knowledge of the researcher, in addition to one study that was based on financial data observation all in the USA as follows: interviewing information system auditors by phone (Keil and Robey, 1999), sending a cross-sectional mailed survey to members of the information systems audit and control association (Keil et al., 2000), observing companies' loan and financial data (McNamara et al., 2002), and an online survey for information system projects' stakeholders, developers, leaders and users (Korzaan and Morris, 2009).

Overall, several variables were found in all real life studies, whether cases or surveys, that could be categorized into two sets of factors: the first set included empirical variables that either confirmed or differed from what was accomplished within laboratory setting studies, and the second set of factors included empirical variables that were not examined earlier through laboratory contexts but were considered to have a significant influence on managers' decisions to escalate/de-escalate commitment in real life cases. For example, within the first set, variables such as personal responsibility, sunk costs, degree of project completion, information frame, self-justification, face saving, and the availability of alternatives have confirmed what empirical laboratory-based studies have achieved (Staw and Hoang, 1995; Montealegre and Keil, 2000; Wong et al., 2006; Pan et al., 2009). While variables such as the manner in which the decision was made (groups or individuals), managers' nationality, and managers' aim for personal gains were not found to widely

influence managers' escalation/de-escalation decisions in laboratory-based studies (Keil and Robey, 1999; Kisfalvi, 2000; Pan et al., 2006).

Within the second set, it is found that variables such as the average return on investment (Bondt and Makheja, 1988), lack of goal congruency (Keil, 1995), investors' beliefs of the course of action (Ryan, 1995), technical difficulties (Drummond, 1998), implementing an exit strategy (Montealegre and Keil, 2000), change in decision responsibility (McNamara et al., 2002), cost of withdrawal/resistance (Pan et al., 2009), and preference for consistency, time and urgency (Korzaan and Morris, 2009) were found to influence the (de)-escalation phenomenon in real life cases, particularly, in agreement with the specific characteristics of each case but their influence was never discovered in laboratory-based studies.

#### **4.5 Studies that Examined Empirical Variables within Groups**

Authors within this category based their studies on classifying empirical variables under several different groups, where each group includes a set of variables that had or shared similar characteristics (Table 4.9). Knowing that, this approach started to take place in the (de)-escalation empirical literature in the late 1980s up to the current, as it resulted from examining projects within a case study approach (Section 4.3.2) and extended to be applied in laboratory contexts, which will be discussed first in the following subsection.

##### **4.5.1 Controlled Empirical Variables**

Studying empirical variables as groups under this category did not differ from examining them separately (see Section 4.3.1). The first step was developing a hypothetical

explanation for the escalation/de-escalation phenomenon (Sivanathan et al., 2007; Berg et al., 2009), which is followed by examining variables under the researcher control that would enhance this explanation through restricting any other forces that were not subject to the study and manipulating the degrees of influence of the variables that were under the study (Schultz and Cheng, 2002; Biyalogorsky et al., 2006).

Only one study was found, to the knowledge of the researcher, which examined empirical variables as groups in a laboratory context that was accomplished in the USA. Perhaps the reason for the limited studies in this category goes back to the difficulties in managing large numbers of variables in a laboratory context (Sabherwal et al., 2003). In the study by Sabherwal et al. (2003) the level of commitment to a course of action was suggested to be influenced by four groups of factors: project; psychological; structural; and, social. Further, by limiting each group to only two variables, they manipulated each variable to two levels of influence (see Table 4.6) to measure such effects.

**Table 4.6: Variables as Groups in the Study of Sabherwal et al. (2003)**

<i>Group of Variables</i>	<i>Variables</i>	<i>Degrees of manipulation</i>	
Project	Project payoff	Large	Small
	Cost of payoff	Large	Small
Psychological	Initial commitment	Present	Absent
	Decision frame	Positive	Negative
Social	Competitor experience	Present	Absent
	Job security	High	Low
Structural	CEO support	High	Moderate
	Side bets	Involved	Not involved

### 4.5.2 Uncontrolled Empirical Variables

The empirical literature, as mentioned earlier, has classified variables that shared similar characteristics into several different groups (see Table 4.7)<sup>4</sup>.

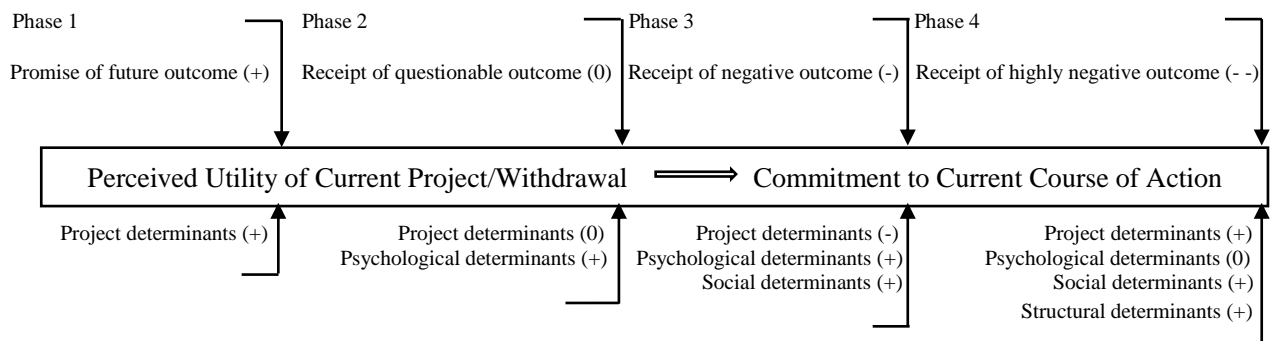
**Table 4.7: A Chronology of Detailed Uncontrolled within Group Variables**

<i>Time Period</i>	<i>Determinants and forces of (de)escalation of commitment</i>			
	<i>Project</i>	<i>Psychological</i>	<i>Social</i>	<i>Structural</i>
1980s	Objectively beneficial project, doubtful costs and benefits.	Information processing errors and personal responsibility.	Need for external justification, political importance, and modelling.	Project side-bets, inner and outside relationships.
1990s	Ambiguity of economic data, sequencing of project's costs and benefits, project categorization as a long investment, salvage value, closing costs, and overall size of project. Paucity of alternatives. Costs of withdrawal and salvage value. Project payoff, payoff structure, infeasibility of alternatives.	Personal reinforcement history and errors in information processing. Reinforcement traps, information processing errors, value attached to turnarounds, sunk costs, and framing.	External justification, management identified with project, norms of consistency and modelling. Committee embarrassment, political pressures, and the desire to maintain appearance. Fear of confrontation. Public identification with project, responsibility for failure, modelling, and political rivalry. Director became a scapegoat, political pressures, and preserving the image.	Organisational: technical side-bets, political support, and institutionalization. Contextual: the project became larger than the company, and external political parties. The committee was tied to their inheritance. Timing of information. Political support and resource constrains. Committee was tied to its inheritance.
2000s	Unclear definition and incorrect sequence of programme, Illusion of control.	Selective perception		
2010s	Low salvage value, Expedition goal had a large payoff, Mismanaged information.	Prior history of success, Reinforcement traps, Personal responsibility	Competitive rivalry, Revelation of errors and failure.	Organisational (institutionalization, Pursuit of enterprise growth)

<sup>4</sup> For a more detailed display of all variables of this category see Table 4 in Appendix C

Project determinants referred to those that are precisely linked to the project such as the costs and financial benefits, psychological determinants referred to those that are related to the decision maker him/her-self such as reinforcement's traps, social determinants referred to those that are linked to the decision maker's society such as external justification, and structural determinants represented variables that beyond managers' control yet they are not social or linked to the project such as organisational or political influences (e.g., Ross and Staw, 1986; 1993; Drummond, 1994; 1995; Newman and Sabherwal, 1996; O'Neil, 2009).

The leading authors who started this trend were Ross and Staw (1986) who investigated the escalation/de-escalation phenomenon within a real life case study in Canada and consequently suggested grouping variables that influenced the occurrence as well the persistence of this phenomenon into four categories: project, psychological, social, and structural determinants. Moreover, they followed their attempt with three sequential theoretical studies in the years (1987a; 1987b; 1991) in order to develop a prototype for the phenomenon that would provide guidance on which forces would have the strongest influence in such situations over time (see Figure 4.3).



**Figure 4.3: Stages of the Escalation Prototype in Ross and Staw's Study (1987: 67)**

Their suggested model (1987, 65-66) included four phases that were classified according to the receipt of information, which started with the promise of positive outcomes but over time turned to negative consequences, and factors influencing managers' decisions at each phase as follows: a) the first phase where the project would be expected to gain positive future outcomes, as it was influenced positively by project determinants; b) in the second phase, were doubts surrounding the positive outcomes, as the project determinants were suggested to be less attractive, yet psychological determinants were expected to positively influence management decisions; c) in the third phase, where the project starts to receive negative information whereas psychological and social determinants are positively expected to influence managements' decision while the influence of project determinates would be negative; d) finally in phase four, where management would receive highly negative information, psychological pressures on commitment would be eliminated, while project, social, and structural factors would be positively influencing the decision to commit additional resources.

According to their classification (Table 4.8), project determinants such as the salvage value closing costs or whether the investment is characterized as short or long term are factors that share one element which is the objective features of the failing project. While psychological determinants are forces that stem from the decision makers themselves in terms of reinforcement traps, self-justification or information biasing. Social determinants, on the other hand, are factors that stem from other parties such as competition pressures or they could be linked to the image of decision makers in the society such as acting as a hero. Finally, structural determinants are those forces that stem from the features of the

managers' organisation such as goals of the firm or any interaction patterns in relation such as created economic side-bets.

**Table 4.8: Suggested Factors and Determinants in Staw and Ross's 1987 study**

<i>Determinants</i>	<i>Factors</i>
Project determinants	Investment character of project, temporary cause of setback, efficacious resources, size of payoff, cost of payoff, infeasibility of alternatives, closing costs, salvage value, and long-term payoff structure.
Psychological determinants	Irregular pattern of decline, prior expenditures irrevocable, tendency for perseverance, public, freely chosen, repeated and important, turnaround scripts, framing, commons structuring of outcomes, ego importance of failure, personal responsibility for failure, and reinforcement traps.
Social determinants	Competition or political rivalry, responsibility for failure, job insecurity, public identification with the project, norms of consistency or hero effect, and modelling.
Structural determinants	Institutionalization, project tied to organisational goals or values, political support, administrative inertia, and economic or technical side-bets.

In order to gain more support, Ross and Staw (1993) investigated an organisational decision of commitment in a real life case (Nuclear Power Plant) in the USA through their 1987 prototype model of escalation. They categorized 17 variables into four groups: project, psychological, social, organisational, and contextual determinants. Their results gave more strength to their model in terms of both the cycle of the escalation/de-escalation decision and the determinants that influence this decision.

In their 1993 study, the organisational escalation/de-escalation of commitment decision went through four phases before management decided to quit and terminate the failing project. The first phase: when the project was initiated and implemented, project determinants were favourable (positive). In the second phase: future outcomes begun to be questionable, project determinants were less positive while psychological and social determinants were more effective than organisational or contextual determinants, the decision was made to continue adding resources to the project (escalate commitment). In



the third phase: future outcomes were negative, project determinants turned distinctly negative, and psychological, social, organisational, and contextual determinants were positively influencing the decision to continue the project. Finally, in the fourth stage: the project was receiving highly negative outcomes, psychological and social determinants influences were removed, while project, organisational and contextual determinants were positively influencing managers' decisions which led to closing the project.

The previous work of Ross and Staw has inspired several authors that investigated real life cases (e.g., Drummond, 1994; Keil, 1995; Newman and Sabherwal, 1996; Drummond and Hodgson, 1996; Kisfalvi, 2000; Alvarez et al., 2011) as they grouped studies variables in several determinants (Table 4.9)<sup>5</sup>.

**Table 4.9: A Chronology of Uncontrolled within Groups Variables**

<i>Time Period</i>	<i>Number and Place of Studies</i>	<i>Theoretical Approach</i>	<i>Variables Examined</i>
1980s	1 study, Canada	Ross & Staw's model of escalation	Project, Psychological, Social, and Structural determinants.
1990s	5 studies, USA, UK.	Organization theory, Ross & Staw's model of escalation, Bowen's two factor model, Escalation Theory.	Psychological, Project, Social, Organisational, Contextual, Structural, and Political determinants, Information effects.
2000s	2 studies, USA.	Self-justification. Prospect theory, Escalation theory.	Project, Psychological, Social, Organisational, and Structural factors.
2010s	1 study, Mount Everest.	Escalation theory.	Project, Psychological, Social, and Organisational determinants.

<sup>5</sup> For detailed display of studies of this category see Table 5 in Appendix C.

## **4.6 Limitations of Previous Empirical Research**

A noticeable restriction, from the previous review, is the issue of generalizing the achieved results of empirical studies in the escalation/de-escalation field, as they were mostly obtained either within laboratory-settings or through single case studies. Most of these studies were conducted in industrialized developed countries, mainly in the USA, UK, Canada, and Australia, but to the knowledge of the researcher, no such studies exist about developing countries. The present study overcomes these shortcomings through a rigorous research design that includes an encapsulating survey questionnaire that was methodically administered to large sample of companies to capture first-hand corporate (de)-escalation experience (see Chapter Five). More limitations were found in the existing empirical literature that, in agreement with the structure of this chapter, could be categorized into two groups: the first is related to studies that examined controlled variables and the second is linked to studies that examined uncontrolled variables as follows.

### **4.6.1 Limitations of Studies with Controlled Variables**

Variables that influenced the escalation/de-escalation phenomenon, whether directly or indirectly, within controlled settings i.e. in laboratory contexts, shared the following limitations:

The first shortfall is linked to subjects who participated in those experiments, which the generated results were obtained from. Although escalation/de-escalation authors have targeted managers such as MBA students (Leatherwood and Conlon, 1983), executive

MBA students (Sharp and Salter, 1997), auditors (Jeffery, 1992), or geologists (Garland et al., 1990) the majority of participants were undergraduate students who were asked to act as managers. A few of these students were familiar with the decision making process in the real world (Rao and Monk, 1999), few have studied an introductory course in management (Citera et al., 2000), while a few came from psychological (Brecher and Hantula, 2005) or informational system backgrounds (Greer and Stephens, 2001).

Therefore, counting on and obtaining results through participants with these characteristics might cause the ignorance of important features that practitioner managers when facing conflict situations in the real world might experience particularly as project managers. This explains the difference between the explanation provided by managers in real life case studies and the one provided by subjects in laboratory contexts for the escalation/de-escalation phenomenon. For example, by the time the decision of escalation was found to be largely explained through managers' initial or personal responsibility (e.g., Staw, 1976; Barton et al., 1989; Jeffery, 1992; Schultz and Cheng, 2002; Biyalogorsky et al., 2006; Slaughter and Greguras, 2008) in laboratory settings, in real life cases not only this explanation did not exist to the same extent, but the decision of escalation/de-escalation commitment was explained more through other forces such as political support for the failing project or organisational side-bets (e.g., Ross and Staw, 1993; Newman and Sabherwal, 1996; Montealegre and Keil, 2000).

The second shortfall is related to the tested variables. The majority of escalation/de-escalation studies did not clearly distinguish between the moderating variables and the

main independent variables. As was discussed previously in Section 4.4.1, the manipulation of examined variables in most controlled studies was unrealistic in terms of presenting two levels or degrees of manipulation. For example, very high/low levels of sunk costs (Zhiyuan and Qing, 2008), present/absent levels of self-affirm (Sivanathan et al., 2007), or positive/negative degrees of information framing (Salter et al., 2004). However, few attempts were made to examine more than two levels of variables such as several levels of project completion (Conlon and Garland, 1993), individual vs. groups vs. groups with shared information levels (Citera et al., 2000), or three levels of new product development (Schmidt and Calantone, 2002), which to an extent matches what was found in real case studies. For example Ross and Staw (1993) in their study of the Nuclear power Plant case in the USA, found that project determinants had three different degrees of influence on four levels of managers' decision: positive (+) in phase one, extra positive (+ +) in phase three, and extremely positive (+ + +) in phase four.

Finally the scenarios presented in experiments were created to reflect a replicated decision making setting through narrowing and restricting the escalation/de-escalation forces to particular variables that would be examined. This restriction was not limited to external forces such as the competitive market, but included the removal of variables that were considered in the literature to be significant to managers' choices in these conflict situations. For example, the scenario provided in Greer and Stephans' (2001: 69) study to both Mexican and USA participants did not include any indication of the amount of expected return except for the phrase: *"the project outcome will have an enormous impact on your reputation"*. Therefore, the scenarios presented did not ever match real life

environments where decisions regarding projects are influenced by external dynamics in addition to internal factors.

#### **4.6.2 Limitations of Studies with Uncontrolled Variables**

Variables that influenced the escalation/de-escalation phenomenon through uncontrolled settings i.e. methods that were beyond the researcher's manipulation shared the following limitations:

The first shortfall can be linked to the number of studies that examined uncontrolled variables; out of 135 empirical studies only 26 real life cases were examined and another four studies only employed methods, which ranged from telephone interviews, cross-sectional postal surveys, observed data, and online surveys (see Tables 3 and 4 in Appendix C). Each examined case was unique, for example, factors that influenced the decision to continue constructing a Nuclear Power Plant in the USA (Ross and Staw 1993) were different from factors that would influence hosting a worldwide affair such as Expo86 in Canada (Ross and Staw, 1986), where both would differ from implementing an informational technology programme in the UK (Drummond, 1998) or an informational technology programme in an educational institution in Denmark (Mährang et al., 2008). Therefore, generalizing the results obtained is limited to each case particularly or at best, might extend to include similar cases.

Although the studies reported company practice, they only considered a limited number of variables. This limitation was not unique to case studies; it also applies to the few survey-based studies. For example, Keil and Robey (1999) questioned seven variables through

their telephone interviews to 75 informational system auditors in the USA. Keil et al. (2000), on the other hand, attempted a multi-theoretical approach by selecting six variables from four different theories in their cross-sectional survey of auditors of information system projects in the USA. However, in addition to the long list of limitations they mentioned themselves, their study cannot be considered properly multi-theoretical, nor is the cross-sectional method they used appropriate for a multi-theoretical study. Other examples of studies with limited variable sets are those by McNamara et al. (2002) who looked at only three variables, and Korzan and Morris (2009) only considered four variables in their online survey of 232 information system project managers.

Finally, the third restriction is related to the respondents' type in surveys. Because of easy access and being agreed to participate in studies (e.g., Keil et al., 2000), respondents in two out of three surveys were information systems auditors, while the third were information systems' stakeholders, developers, leaders and users. This resulted in that an important respondents' segment represented in people who have direct authority and relationship with the failing project such as the department or project managers were excluded. Therefore, results will not represent managers' view and will not provide an accurate explanation for the existence of the phenomenon.

#### **4.7 Theoretical and Methodological Implications for the Present Study**

It is clearly evident from the foregoing detailed review of empirical literature that the complexity, pervasiveness and universality of the project escalation decision problem cannot be comprehended through speculative reasoning alone, regardless which

theoretical lens they are seen through. Empirical validation is needed to establish theoretical legitimacy of the study of the escalation problem but this cannot be demonstrably and unambiguously achieved through the restrictive manipulation of selected variables in an imaginary setting such as a laboratory experiment. A laboratory-based approach is therefore ruled out for the present study. Nevertheless, despite their shortcomings, laboratory experiments have been useful in the continuing search for appropriate theoretical models and the relentless research effort to make sense of a multifaceted problem despite the perennial lack of access to company data that frustrates researchers. This academic tenacity can be seen as the catalyst for the few studies based on real life companies that have steadily emerged in the shadow of the large number of laboratory-based experiments in the last five decades.

Although few in number, the studies reviewed above have tried in a very limited way to examine single company project (de)-escalation practice and provide, in most cases, some empirical validity to one of the plethora of theoretical propositions that abound in the literature. It is clearly evident from the above analysis that no single study provided a comprehensive framework to guide a serious research project but, when viewed collectively, they formed a body of evidence that pointed to the superiority of the approach-avoidance model, hence the adoption of this model in the present study.

It is worth adding here that one exception is the study of Keil et al. (2000) whose eye-catching title gives the reader the initial impression that it is, unlike its predecessors, an encapsulating multi-theoretical study. Undoubtedly there has been a growing interest in

the multi-theory approach, or theoretical triangulation, to remedy the shortcomings of one theory with another theory in the investigation of a research question, and enhance confidence in the ensuing findings and interpretation of results (e.g., Christopher, 2010; Hoque et al., 2013). However, the desirability of theoretical triangulation is one thing, and properly operationalising it is another and, by their own admission, Keil et al. (2000) have not succeeded in doing so. Some of the many limitations they list have been summarised in Section 4.6 above, namely their cherry-picking of constructs from the four theories they claimed to combine and their total reliance on project auditors as their source of primary data. Even if their questionably selective approach can be passed as mildly multi-theoretical, their use of a single data source that relies on a cross-sectional survey is also questionable. Proponents of theoretical triangulation (e.g., Christopher, 2010; Hoque et al., 2013) clearly advocate the use of (multiple) case studies and preferably methodological triangulation. As the overall aim of the multi-theoretical approach is the in-depth probing of the ‘how’ and ‘why’ questions particularly for contemporary phenomena within a real-life context, a multiple-case study approach (e.g., Yin, 2003) is more suitable as research data can be treated cumulatively. Alternatively, the adoption of a multi-theoretical approach warrants the use of data triangulation, or pluralism in data sources and data collection techniques (Hoque et al., 2013), to capture multi-level complexities of a phenomenon such as the escalation of commitment in capital project decisions. Therefore, Keil et al.’s (2000) purported multi-theoretical approach is too flawed and cannot be relied upon for the purposes of the present study.



#### **4.8 Summary and Conclusion**

This chapter presented a detailed review of the empirical literature on the capital investment decision making process and the escalation/de-escalation problem in order to highlight conceptual and methodological issues to help guide the current study. Most of the existing literature is in the form of often ill-conceived laboratory based on experiments conducted mainly in the USA and UK. Although these experiments have tried to extend the understanding of the problem by ‘operationalising’ existing theoretical constructs through simulation, their practical relevance is questionable because the numerous limitations of such experimental determination, e.g. the professional level of subjects who participated in those experiments, the mechanisms of variable manipulation used, and the degree in which the simulated scenarios matched reality.

On the other hand, studies based on real life companies, while more useful than laboratory-based ones, are too few in number and are limited to a small aspect of the problem, therefore far from being able to offer enough evidence to generalize, statistically or analytically, the reported practice. Moreover, they are generally limited in scope given the uniqueness of each case presented, the small number of variables examined and, when an attempt was made to conduct a large scale study; it was done with a largely flawed theoretical triangulation approach. A key conclusion from reviewing empirical studies in relatively sufficient detail is that they are quite disparate in approach and results for them to form a cohesive body of knowledge on a problem of tremendous complexity and practical implications for capital project investment and management.

Overall, in addition to extensive review of theoretical perspectives presented in the previous chapter, it has been learnt from the analysis of the (semi)empirical literature in this chapter that a serious study of the escalation of commitment phenomenon needs to be conceptually sound, methodologically robust, and applied to a sufficiently large sample of managers directly involved in capital investment projects and the subsequent (de)-escalation decision. This is no easy task on a sensitive and data deficient research topic but, in the light of the cumulative knowledge gleaned from the extant literature, it is the most promising approach to produce results that are knowledge worthy and practically impactful. To this end, the careful research design of the present study is explained in the next chapter.

## **Chapter Five**

### **Research Methodology**

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#### **5.1 Introduction**

As mentioned in Chapter One, the main objective of the current study is to examine the escalation/de-escalation of capital projects in the Saudi corporate culture. Since the methodology adopted by any study must be appropriate for the objectives of that study, the aim of this chapter is to describe the research design and methods as well as to explain the reason for applying the chosen method.

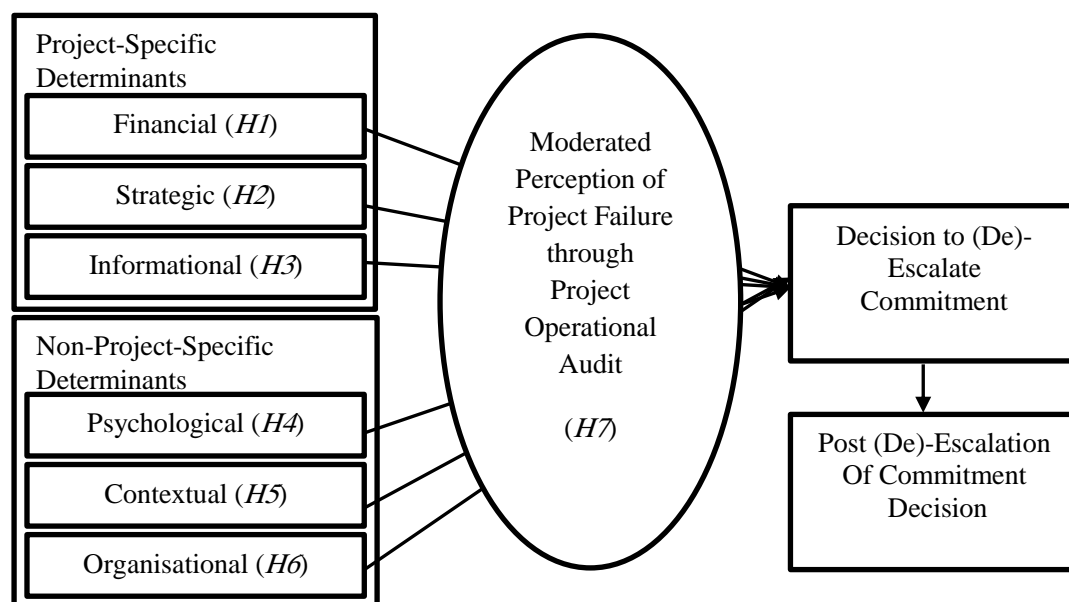
This chapter presents the research theoretical model and hypothesis development in detail (Section 5.2), followed by the research paradigm and philosophy (Section 5.3), research approach (Section 5.4) and data collection methods (Section 5.5). The remaining five sections present information on the research population and sample for both the survey questionnaire and interviews (Section 5.6), questionnaire design (Section 5.7), questionnaire content and sources (Section 5.8), validity and reliability issues (Section 5.9) and data analysis techniques (Section 5.10). Section 5.11 concludes the chapter.

#### **5.2 Research Theoretical Model and Hypothesis Development**

The research theoretical model that was introduced in Chapter One and its constituent components were clarified further through the information presented in Chapters 2-4. A more detailed explanation of how the approach-avoidance theory is applied in a systematic and integrative way in this study is given below.

### 5.2.1 Research Theoretical Model

Figure 5.1 below depicts the research theoretical model, taking into account the model's project-specific and non-project-specific variables, in addition to the direct/indirect relationships therein in relation to the (de)-escalation of commitment and its outcomes. *H1* to *H7* refer to the research hypotheses (see Section 5.2.2).



**Figure 5.1: Research Theoretical Model**

The natural progression and the parallel development of methods in the literature in the preceding chapters made clear that the (de)-escalation phenomenon is complex in its nature and implications and any simple study approach would not do it justice.

Therefore, in order to comprehend all facets of this complexity, the development of the current research model adopts a sophisticated approach that combines the influence of two groups of decision determinants: project-specific (financial, strategic, informational) and non-project-specific (psychological, contextual, organisational). This influence is studied

at two levels: the direct effect of determinants on managers' (de)-escalation decisions and then the moderating effect of project operational audit on managers' choices.

### 5.2.2 Hypothesis Development

The hypotheses are summarised in Table 5.1 in relation to the study's research objectives and questions and explained in detail from here onwards.

**Table 5.1: Research Objectives, Questions and Hypotheses**

<i>Objectives</i>	<i>Questions</i>	<i>Hypotheses</i>
1. Examine the impact of project-specific determinants on managers' decisions to (de)escalate commitment.	1. What are the project-specific determinants that influence managers in Saudi companies to (de)escalate commitment in capital project decisions?	<i>H1</i> : Financial determinants influence managers' decisions to (de)escalate commitment to a failing course of action. <i>H2</i> : Strategic determinants influence managers' decisions to (de)escalate commitment to a failing course of action. <i>H3</i> : Informational determinants influence managers' decisions to (de)escalate commitment to a failing course of action.
2. Examine the psychological dimension in capital project (de)escalation of commitment decisions.	2. To what extent are project managers in Saudi companies affected by non-project-specific factors when making (de)escalation of commitment decisions?	<i>H4</i> : Psychological determinants influence managers' decisions to (de)escalate commitment to a failing course of action.
3. Examine the extent to which contextual and organisational factors influence capital project (de)escalation of commitment decisions.		<i>H5</i> : Contextual determinants influence managers' decisions to (de)escalate commitment to a failing course of action. <i>H6</i> : Organisational determinants influence managers' decisions to (de)escalate commitment to a failing course of action.
4. Examine the moderating role that operational audit might have on project (de)escalation of commitment decisions.	3. Does operational audit have a moderating role in the impact of escalation/de-escalation determinants on project (de)escalation of commitment decisions in Saudi companies?	<i>H7</i> : Operational auditing plays a moderating role with respect to the determinants involved in the (de)escalate decisions.

Guided by the study's theoretical model and the in-depth review of both the theoretical and empirical literature in the previous chapters, the development of the study's research

hypotheses is henceforth laid out for all the decision determinants at both the direct and moderated levels of analysis. In line with the chosen multifaceted research approach, a near enumerative account of relevant studies is given to elucidate the relevance and practical significance of the project decision determinants and contextualise each research hypothesis.

#### **5.2.2.1 Project-Specific Determinants**

Project-specific determinants are those that are found straightforwardly related to the project itself and they have a noticeable influence on managers' escalation/de-escalation decisions (Ross and Staw, 1986; 1993; Drummond, 1994; 1995; Newman and Sabherwal, 1996). They are linked to the project's financial features, strategic aligning, and information related (Ross and Staw, 1993). In this section each of the project-specific determinants will be treated as an approach or avoidance attribute of escalation as suggested by the results of the relevant literature review in order to generate plausible research hypotheses.

#### **1. Financial Determinants**

Financial determinants are related to the system of in and out cash flows (Adair, 2005). They either represent the amount of monetary resources invested in the failing project i.e., sunk costs (Arkes and Blummer, 1985; Garland and Newport, 1991; Devine and O'Clock, 1995; Newman and Sabherwal, 1996; Boehne and Paese, 2000; Pan et al., 2006) or they refer to the expected costs and revenues of the failing project (Brockner et al., 1981; Drummond, 1994; Gosh, 1997; Tan and Yates, 2002; Pan et al., 2006).

Since Arkes and Blummer (1985) introduced the philosophy of sunk costs effect in a series of ten different laboratory experiments on managers' escalation decisions, sunk costs have been one of the financial determinants closely examined in the empirical literature, as it is considered, just like initial responsibility, an important force behind managers' choices to escalate commitment. As cited by Arkes and Blummer (1985: 124) in the words of a USA senator *"to terminate a project in which \$1.1 billion has been invested represents an unconscionable mishandling of taxpayers' dollars"*.

Sunk costs are seen as a factor that increases managers' allocation decisions to failing projects (e.g., Arkes and Blummer, 1985; Brockner et al., 1986; Garland et al., 1990; Garland and Newport, 1991; Keil, 1995; Newman et al., 1996; Drummond, 1998; Keil et al., 2000; Kisfalvi, 2000). For example, whether participants of Keil (1995) study were given the choice of an alternative course of action, an upward sloping sunk costs effect on commitment was observed. Most empirical studies that examined the sunk cost effect linked it to the assumptions of prospect theory in laboratory conditions, which allowed them to frame and manipulate this influence such as the framing of sunk costs to: absolute (dollars)/relative (budgeted) in Garland and Newport's (1991) study, or manipulating four levels of sunk costs (15%; 40%; 65%; and, 90%) in the study by Keil et al. (1995).

However, manipulating, framing, and relating the effect of sunk costs with other financial/non-financial factors have either limited the strong influence of this variable or increased managers' ability to make de-escalation decisions (see Tables 1 and 2 in Appendix C). For example, the influence of sunk costs was limited when examined jointly

with implicit/explicit opportunity costs (Northcraft and Neale, 1986) or within the degree of project completion (Conlon and Garland, 1993; 1998; Boehne and Paese, 2000). Managers were driven to make de-escalation decisions when sunk costs, for example, were examined in relation with the information regarding residual return of the project (Tan and Yates, 1995), within the availability of shoulder blaming or assurance affording and in low degrees of sunk costs (Heng et al., 2003), or if sunk costs were compared to and exceeded the budgeted amount for a project (Heath, 1995).

In addition to sunk costs, a number of other financial determinants attracted several escalation/de-escalation authors (e.g. Staw, 1976; Brockner et al., 1979; Bateman, 1986; Ross and Staw, 1993; Boulding et al., 1997; McElhinney and Proctor, 2005). For example, the costs and revenues of the failing project (Brockner et al., 1981; Ross and Staw, 1993; Drummond, 1994; Boulding et al., 1997), the estimated costs and revenues of a future investment (Heath, 1995; Tan and Yates, 1995; Gosh, 1997), opportunity costs attracted several authors (Northcraft and Neale, 1986; Devine and O'Clock, 1995), the salvage and closing costs of the project (Ross and Staw, 1986; 1993; Newman and Sabherwal, 1996), if the stated budget limits for the project were publicly stated (Keil and Robey, 1999), the costs of persisting (Leatherwood and Conlon, 1983; Drummond, 1994; Pan et al., 2006; Pan et al., 2009) and costs of withdrawal from a failing course of action (Drummond, 1995; Pan et al., 2006; Pan et al., 2009). These financial determinants were examined from different viewpoints, for example, their degree of importance (Brockner et al., 1981), whether they were doubtful (Ross and Staw, 1986); poor/slack (Newman and Sabherwal,



1996; Boulding et al., 1997); or whether they were explicit/implicit (Tan and Yates, 1995).

Escalation/de-escalation authors have focused on financial factors (see Table 5.2) in trying to explain managers' choices (Staw, 1976; Brockner et al, 1981; Arkes and Blumer, 1985; Bateman, 1986; Northcraft and Neale, 1986; Garland and Newport, 1991; Drummond, 1994; Boehne and Paese, 2000; Tan and Yates, 2002; Pan et al, 2006). Financial determinants were presented in experimental scenarios to give participants of laboratory experiments the financial performance of the failing/alternative projects (e.g. Staw and Ross, 1978; Caldwell and O'Reilly, 1981; Kite et al., 1997; Chow et al, 1999; Ruchala, 1999; Cheng et al., 2003; Berg et al., 2009).

**Table 5.2: Approach-Avoidance Attributes for Financial Determinants**

<i>Approach attributes</i>	<i>Avoid attributes</i>
Negative financial information	Positive financial information
Sunk costs	Decrease the ambiguity of financial information
	Opportunity costs
	Low closing costs
	High salvage value
	Stated limits for the budget was publicly stated
	Residual return
	Limited budget
	Future return
	Low degree of sunk costs and conditions of shoulder blaming or providing assurance

For example, subjects were assigned to long/short-term groups of investors and were provided with financial information regarding an alternative investment that would cut 75% of production costs in Kite et al. (1997) study; the results indicated that 62% of long-term participants switched directly to the alternative compared to 50% of short-term investors. In Cheng et al. (2003) study, subjects were assigned to organisational/self-set

hurdle rates conditions and were provided with negative information regarding the failing project in the form of declined net cash flows and positive information regarding an alternative project in the form of promising IRR. The results showed that self-set hurdle rate participants have reduced their escalation of commitment to the failing project more than organisational-set participants.

The importance of financial determinants emerged from their influence on managers' escalation/de-escalation decisions in laboratory settings. For example, when financial information regarding the failing project was presented in positive circumstances, managers allocated fewer resources than when it was presented in negative circumstances (Staw, 1976). The sequence of revenues and costs of a project might have acted against withdrawal from it, because the cost estimates for the project rose almost exponentially (Ross and Staw, 1993). Escalation tendencies were reduced when participants in a laboratory experiment were provided with information on future benefits from the additional investments (Gosh, 1997). Similarly, more than 75% of the participants in Zikmund-Fisher's (2004) study left earlier when provided with high returns, whereas when provided with low returns the estimated cumulative quit rate was 69% and almost at the end of the experiment. Devine and O'Clock (1995) reported that when provided with *historical costs* in the negative domain, 43.1% of the subjects in their experiment chose to sell the project, compared to 64.4% who chose instead to sell the alternative project. On the other hand Devine and O'Clock (1995) observed that when confronted with *opportunity costs* 43.8% of the study subjects chose to sell the project, compared to 52.2%

who decided to sell when explicit information was presented regarding an alternative opportunity.

Further, after being committed to an initial launch, 6 of the 28 participants in Boulding et al. (1997) study chosen to pull out of the product, when the degree of information ambiguity was decreased, 21% chosen to withdraw the product regardless of the financial information that indicated it was the best course of action. Participants in Goltz (1999) study allocated more resources to the investment opportunity that provided more frequent positive revenues, and participants who received large irregular positive revenues for their allocations at the start invested more than those who received small irregular positive revenues. The size of project payoff affected participants' first as well as third stages of commitment to the project in Sabherwal et al. (2003) study.

Financial determinants influenced managers' choices in case and field studies. For example, because the failing project was initially categorized as a long term investment, the initial losses were accepted, the price of subsequent returns and the payback period was thought to be taken ten years from the date of completion, and the salvage value was never very high, managers have persisted in the project (Ross and Staw, 1993). The opportunity cost of investing in another project was an approach for the de-escalation decision (Pan et al., 2006; 2009). Drummond (1995; 1998) found in two different case studies that what made managers consider discontinuing the investment in the first case was that the costs of withdrawal were low and salvage value was high, while the potential payoff in the second case made decision makers continue with the project. Escalation of

commitment was influenced by the large payoff, long-term pay off structure, and the high closing costs, while, low salvage value and low closing costs influenced the decision to de-escalate commitment in Newman et al's. (1996) case study. De-escalation of commitment was associated with more public stated limits in Keil and Robey (1999) field survey.

Therefore, based on the foregoing evidence from the literature, the link between managers' escalation/de-escalation decisions and financial determinants can be hypothesized as follows:

*H1: Financial determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

## **2. Strategic Determinants**

Strategic determinants are those related to strategic investment decision-making, which is relevant to the procedure of recognizing, appraising, and deciding on a project that is expected to have a large influence on the organisation's economic benefit (Adler, 2000). Strategic determinants emerge from and are about elements related to strategic management issues where top management takes responsibility of three stages (David, 2007): *formulation, implementation, and evaluation.*

In the escalation/de-escalation literature, strategic *formulation* has been represented through categorizing the investment project's life cycle (Kite et al., 1997), resource constraints (Newman et al., 1996; Drummond, 1998), and the availability of an alternative

investment opportunity (Drummond, 1994; Lipshitz, 1995; Keil et al., 1995; Newman et al., 1996; Mähring and Keil, 2008; Harvey and Victoravich, 2009; Fox et al., 2009).

Strategic *implementation* has been discussed through a project's degree of completion (Rubin and Brockner, 1975; Conlon and Garland, 1993; Keil et al., 2000; Moon et al., 2003; He and Mittal, 2007; Pan et al., 2006; 2009) and a project's degree of risk (Boulding et al., 1997; Wong, 2005; He and Mittal, 2007; Jani, 2008). Finally, strategic *evaluation* has been expressed in terms of continuous monitoring (Keil and Robey, 1999; McNamara et al., 2002) and the availability of a progress report (Gosh, 1997).

The significance of strategic determinants emerged from their influence on managers' escalation/de-escalation decisions (see Table 5.3) as illustrated by the following chronology of previous studies.

**Table 5.3: Approach-Avoidance Attributes for Strategic Determinants**

<i>Approach attributes</i>	<i>Avoid attributes</i>
Ownership (resource constrains)	Financial (resource constrains)
High degree of project completion	Low degree of project completion
Short term investments	Long term investments
Initially responsible for risky projects	High degree of risk
	Increased monitoring and regular evaluation
	Preparation of progress report
	Availability of an alternative investment opportunity

Regarding managers' escalation decisions, several strategic elements were considered, for example the degree of project completion, which is associated with time passage and the closure to goal attaining (Rubin and Brockner, 1975), where the importance of the need for information decreases whereas the strength of the need for completion increases (He and Mittal, 2007). This was noticed in laboratory based studies regardless of the existence

of other variables such as personal responsibility (Conlon and Garland, 1993) or whether the decision was made by a group of participants instead of individuals (Moon et al., 2003). The degree of project completion was, also, considered as an escalation force in real cases such as in Pan et al. (2006; 2009) case studies and in Keil et al. (2000) cross sectional survey, as they found that 75.4% of participants with complete conformity believed that the completion effect influenced escalation, that was encouraged when, in addition to the degree of goal completion, managers ignored the extent of difficulties they believed were gone with the old director (Drummond, 1994).

Other strategic determinants were considered as escalation forces such as the *project's life cycle* (i.e. *strategic formulation*) especially short-time investments (Kite et al., 1997). *Project risk* was considered an escalation of commitment attribute, as it predicts managers' choices through three risk-related variables: risk propensity, risk perception, and outcome expectancy (Wong, 2005). The more risky the project became the more managers were risk seeking and either favoured to launch the project (Boulding et al., 1997) or to continue adding resources (Schaubroeck and Davis, 1994; Jani, 2008).

The *alternative investment opportunity* was considered an escalation force if alternatives were paucity and the consequences of each alternative were unclear (Drummond, 1994), if the decision maker's major decisions were made without systematic comparison among alternatives (Lipshitz, 1995), if alternatives were infeasible (Newman et al., 1996), if alternative courses of action were described as equally or more problematic than the escalated project (Mähring and Keil, 2008; Fox et al., 2009).

With Regard to managers' de-escalation decisions, several strategic elements were considered, for example, resource constraints which were directly linked to the supplier's financial difficulties (Newman et al., 1996), the preparation of a progress report (Gosh, 1997), more outcome-oriented evaluations and more regular evaluation of projects (Keil and Robey, 1999), the increased monitoring (McNamara et al., 2002), the availability of a feasible alternative investment opportunity that the decision maker was offered to pursue (Keil et al., 1995; Harvey and Victoravich, 2009).

On the basis of the above literature evidence, the link between managers' escalation/de-escalation decisions and strategic determinants can be hypothesized as follows:

*H2: Strategic determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

### **3. Informational Determinants**

Informational determinants are related to “*any representation, such as characters or analogue quantities, to which meaning might be assigned*” (Walter, 2004: 123). Constantly some sort of information were presented in all escalation/de-escalation empirical studies when examining this phenomenon either through experimental settings (e.g. Boulding et al., 1997; Rutledge and Karim, 1999; He and Mittal, 2007) or case studies (e.g. Drummond, 1994; 1997; Mähring et al., 2008). Informational determinants in the escalation/de-escalation literature were either presented through digits and numbers of the failing project or through a description of specific condition related to the failing project.

Regarding the first group of informational determinants, an amount of exact numbers, several digits were presented in quantitative forms such as sunk costs (Keil et al., 1995; Whyte et al., 1997), future investment (Heath, 1995; Whyte et al., 1997), expected return on investment (Ryan, 1995; Whyte et al., 1997), project's share of the annual market, and the risk-return trade-off (Shaubroeck and Davis, 1995). In addition to these, there is also the degree of project completion (Boehne and Pease, 2000), future returns on investment (Tan and Yates, 1995), opportunity costs (Boulding et al., 1997; Garland and Conlon, 1998), probability of total loss and potential net return on additional investment (Whyte et al., 1997), project IRR and NPV (Ruchala, 1999), the net remaining of an investment (after profits or losses) following each round (Kirby and Davis, 1998), and the need to add more funds to the estimated budget and the expected delay in launching the project (Pan et al., 2006).

The second group of informational determinants is related to a description of a specific condition such as: whether the information was private/public (Harrison and Harrell, 1993; 1995; Harrell and Harrison, 1994; Rutledge and Karim, 1999), the degree of information ambiguity (Boulding et al., 1997; Gosh, 1997), whether the information was framed negatively/positively (Whyte, 1993; Drummond, 1994; Chow et al., 1999), managers' poor performance (Bobocel and Meyer, 1994; Devaun et al., 1997), problems facing the implementation of the project (Ruchala, 1999), a competitor has developed the same project but with superior features (Tan and Yates, 2002), and the low quality of the product where the users were complaining from its low efficacy triggering a need to change the design in order to benefit from the product (Pan et al., 2006).



Both groups of informational determinants, whether in digits or a description, have persuaded managers to escalate/de-escalate commitment to a failing course of action (see Table 5.4). For example, *information ambiguity* was considered an escalation of commitment prompt (Boulding et al., 1997; Gosh, 1997; Hantula and Bragger, 1999; Brecher and Hantula, 2005; Mähring and Keil, 2008). An ambiguous atmosphere regarding a project is explained in terms of the lack of information and the absence of clarity (Mähring and Keil, 2008). The influence of the ambiguity factor is more highlighted when joined with *information bias* because managers would focus on positive information and interpret negative information in a positive way which made them more and longer committed to the project (Boulding et al., 1997) or if managers experienced a high ambiguous environment prior to consistent losses, they would escalate commitment to their investments and persist with these allocations (Hantula and Bragger, 1999), or even worse, they would invest amounts well over the anticipated budget during the failure period (Brecher and Hantula, 2005).

**Table 5.4: Approach-Avoidance Attributes for Informational Determinants**

<i>Approach attributes</i>	<i>Avoid attributes</i>
Information ambiguity	More clear information
Information biased	Public information with less personal gains
Private information and personal gains	High information source credibility
Low information source credibility	Time (early)
Time of information (late)	

Another escalation force is the *bias* (error processing) of the information (Staw and Ross, 1978; Caldwell and O'Reilly, 1981; Ross and Staw, 1993; Drummond, 1995; Newman et al., 1996; Schmidt and Calantone, 2002; Biyalogorsky et al., 2006; Keil, 2008; Pan et al., 2009). Managers emphasize the positive aspects of their decision and minimize the

negative aspects because they are more defensive in their choice of information to be committed to the project (Caldwell and O'Reilly, 1981). They process the information in their favour if they experienced a previous failure and faced an exogenous setback (Staw and Ross, 1978), if they were personally responsible for project failure either through choice or assignment (Caldwell and O'Reilly, 1981; Schmidt and Calantone, 2002), if managers were experts and they wanted to protect their image (Ross and Staw, 1993) or if they were involved in the project failure (Biyalogorsky et al., 2006).

The *publicity of the information* provided was considered an escalation/de-escalation of commitment force (Harrison and Harrell, 1993; Harrell and Harrison, 1994; Sharp and Salter, 1997; Harrison et al., 1999; Rutledge and Karim, 1999; Salter et al., 2004). If managers received private information they would be more likely to escalate commitment than if the information was privately provided (Sharp and Salter, 1997; Rutledge and Karim, 1999). This was more evident when managers in addition to the availability of private information had the potential for personal gains (Harrison et al, 1999), had low moral reasoning (Rutledge and Karim, 1999), or had their own beliefs based on their own culture (Salter et al., 2004).

Managers' de-escalation of commitment decision was influenced by informational determinants such as the timing of the clear and negative feedback, as the sooner negative back is received, the greater the likelihood of withdrawal (Drummond, 1995), or the credibility of information source, which not only directly influenced managersss decisions

affect but it also affected how managers viewed the relevance of the message to their decision (Cuellar et al., 2006).

Therefore, based on the literature evidence above, the link between managers' escalation/de-escalation decisions and informational determinants can be hypothesized as follows:

*H3: Informational determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

#### **5.2.2.2 Non-Project-Specific Determinants**

Non-project-specific determinants are those that are not straightforwardly related to the project, yet they have a noticeable influence on managers' escalation/de-escalation decisions (Ross and Staw, 1993; Newman and Sabherwal, 1996; Greer and Stephens, 2001; Cheng et al., 2003; Wong et al., 2008). They are linked to psychological characteristics of the decision-maker, organisational surroundings and contextual characters in terms of social, cultural, and political influences. In this section each of the non-project-specific determinants will be treated as an approach/avoidance attribute of escalation and key findings from the relevant literature are summarised to pave the way for hypothesis generation.

#### **1. Psychological Determinants**

Psychology could be defined as the regular scientific analysis of the mind, behaviour, and mental processes, in order to understand human minds and behaviour whether in individuals, groups or societies (Albon, 2007). In the escalation/de-escalation field,

psychological determinants refer to those variables that are linked to the decision maker's reactions, characters, or feelings and emotions (Staw and Ross, 1987b; O'Neil, 2009) as they add more explanation to managers' behaviour particularly when this behaviour is noticed as irrational.

Factors that are related to the decision maker's reactions might encourage errors in the estimation of costs or revenues, which influence the way that managers would collect or clarify gathered information or proceed in behaviour. In a case of individuals who might experience losses that caused them to be defensive, they would be more likely to limit their information search and identify information in a certain way (Staw et al., 1981). Similarly, when the information presented questions the profitability of a course of action, it would be disbelieved if it was not in agreement with their image about that course of action (Caldwell and O'Reilly, 1982; Bazerman et al, 1982; Ross and Staw, 1993; Greer and Stephens, 2001). Within this perception, several variables were examined such as initial responsibility (Staw, 1976; McCain, 1986; Kirby and Davis, 1998; Slaughter and Greguras, 2008), prior experience (Staw and Ross, 1978; Goltz, 1992), degree of involvement (Conlon and Wolf, 1980; Biyalogorsky et al., 2006), diffusion of blame (Leatherwood and Conlon, 1983; 1987), mental budget establishment (Heath, 1995), justification (Bobocel and Meyer, 1994; Drummond, 1997; Kadous and Sedor, 2004), and evaluation bias (Slaughter and Greguras, 2008).

The second set of variables are related to the character of the decision maker, which might further attach managers to a course of action, whereas when individuals obtain a return

occasionally or when they trust their efforts, they might persevere in a course of action, despite the fact that there is no hope of attaining their goals (Platt, 1973; Bandura and Cervone, 1986; Staw and Ross, 1987a; Whyte et al., 1997). Variables related to the character of the decision maker were examined such as reinforcement traps (Ross and Staw, 1993; Newman and Sabherwal, 1996), identification with performance (Brockner et al., 1986; Drummond, 1994), incentive to shirk (Whyte et al., 1997; Harrison et al., 1999; Salter et al., 2004), preference for consistency (Korzaan and Morris, 2009), rational thinking (Wong et al., 2008), risk perception (Wong, 2005), and self-efficacy (Whyte et al., 1997; Jani, 2008).

The third set of psychological determinants are related to the feelings and emotions of the decision maker that will influence his/her bond to a course of action, it is noticed that the more managers have negative feelings about a project the more they might be attached to the project, which would result in resisting and continuing a failing course of action. Within this context, variables such as the degree of desire to revenge (Drummond, 1994), job insecurity (Fox and Staw, 1979; Drummond, 1994), feelings of anger and frustration (Lipshitz, 1995), being less tolerant of failure (Keil and Robey, 1999), regret (Ku, 2008), self-esteem (Sinanthan et al., 2008), guilt feelings (O'Neill, 2009) and being worried about punishment (Pan et al., 2006) were examined.

Because the escalation/de-escalation phenomenon was mostly discussed in the organisational behaviour, strategic management, social psychology, and behavioural accounting literatures, (e. g. Arkes and Blumer, 1985; Bobocel and Meyer, 1994; Boehne,

and Paese, 2000; Greer and Stephens, 2001; Cheng et al., 2003) there was more interest in psychological factors. In fact these factors attracted the most attention of escalation/de-escalation authors considering that most of the previous literature comprised one or two psychological factors and it is very uncommon to find any study devoid of those factors, which is consistent with both the definition of psychology as it aims to understand behaviour as well as the rationale behind managers' behaviour. As escalation authors became more dependent on psychological determinants to explain managers' tendency to continue funding a failing project (Schulz and Cheng, 2002; Whyte et al, 1997; Bobocel and Meyer, 1994), de-escalation authors were less interested in these determinants (Pan et al, 2006; Gosh, 1997). They intended to examine whether the existence of factors linked to the project would weaken the influence of the psychological determinants on managers' choices and consequently reduce what was thought to be irrational behaviour (McCain, 1986; Simonson and Staw, 1992; Drummond, 1995; Schultz-Hardt et al., 2009). For example, Drummond (1995) showed that managers would prefer to de-escalate commitment if the influence of psychological determinants was weakened.

In agreement with the current study's theoretical research model, each of the psychological determinants that were examined previously can be treated as an approach/avoidance attribute of escalation of commitment (see Table 5.5). Regarding escalation of commitment approach attributes, both self-justification and personal responsibility have been widely investigated and confirmed (e.g. Staw, 1976; Caldwell and O'Reilly, 1981; Keil, 1995; Sabherwal et al., 2003; Schulz-Hardt et al., 2009) with few notable exceptions (e.g. Singer and Singer, 1986; Drummond, 1995; O'Neill, 2009) to

effect the managers' allocation decisions. Studies who confirmed this influence have found empirical evidence that managers who were responsible for initiating a decision reinvested a higher amount of money to the initially funded decision than those who were not responsible for the initial decision (Schulz-Hardt et al., 2009). This influence has existed even when managers were surrounded with negative circumstances (Rutledge, 1995), or the decision was made by a group of managers (Bazerman et al., 1984; Moon et al., 2003; Zhiyuan and Qing 2008).

**Table 5.5: Approach-Avoidance Attributes for Psychological Determinants**

<i>Approach attributes</i>	<i>Avoid attributes</i>
Individual initial responsibility	Separate responsibility of approving from responsibility of evaluating
Self-justification	The existence of a third party to blame
Group decision making	Feelings of guilt
High degree of self-efficacy	Opportunity to verify wounded ego
Feelings of anger	High degree of self esteem
High degree of job insecurity	Less degree of tolerance of failure
Tolerance of failure	Setting a mental budget
Potential for personal gains	More aware of problems
Need for achievement	
Ignoring project's difficulties	
Believing that project would turn around	

The strong influence of personal responsibility on managers' escalation decisions was weakened when managers were more influenced by political forces, as seen in Drummond (1995) case study, where psychological demands for continuance were low; as at no point did the manager appear to be influenced by feelings of responsibility for project failure. In agreement, when the responsibility of initiating and approving a project was separated from the responsibility of evaluating a project, managers would be less likely influenced by personal responsibility and they would make de-escalation decisions (Keil and Robey, 1999).

The argument about the influence of personal responsibility and self-justification on escalation/de-escalation decisions encouraged more researchers to examine other psychological factors (e.g. Leatherwood and Conlon, 1983; Whyte, 1993; Rutledge, 1995; Keil and Robey, 1999; Seibert and Goltz, 2001; Moon et al., 2003; O'Neill, 2009). Managers were adding more resources to failing projects when they believed they had self-efficacy (Whyte, 1997), when they believed that the failing project could not be turned around despite the disappointing results that were intensely frustrating (Kisfalvi, 2000), when managers experience a condition of high job insecurity and high policy resistance (Fox and Staw, 1979; Sabherwal et al., 2003), or when managers have a potential for personal gain, which had a positive relationship with the continuation of a troubled project, where the more individuals felt the need for achievement in terms of implementation mind-set, internal locus of control and preference for consistency, the more they would continue a troubled project (Korzaan and Morris, 2009). Personal gains, additionally, were noticed in terms of the motivation to maintain an internal image of competence (Rao and Monk, 1999) and in the existence of private information (Harrison et al., 1999).

Managers' de-escalation decisions were influenced by psychological determinants in terms of feelings and emotions they experienced in previous similar situations such as when managers had frequently expressed guilt feelings (O'Neill, 2009), when they experienced regret emotions in one escalation situation, which would tend to reduce future escalation (Ku, 2008), or as explained in Zikmund-Fisher's (2004) study, who reported that nearly one third of participants chose not to return to the experiment at all, another



42% quit after making only one more unsuccessful attempt, 65% quit because they believed that they had little or no chance of winning, 32% quit because they were losing too much money, and 32% quit because it was too frustrating to lose time after time.

More de-escalation forces were noticed such as the incidence of a third party as a cause of the negative consequences that which offered means in which blame could be diffused by the decision maker (Leatherwood and Conlon, 1983), when managers set a mental budget, even with the existence of sunk costs effect, they (80%) stopped reinvesting in a failing project (Heath, 1995), or when managers were more aware of problems and they believed that the project is a failure and cannot be turned around (Keil and Robey, 1999).

Further, the clear association between managers' tolerance of failure and de-escalation decisions that was established in studies influenced their choices, such as, the research by Keil (1995), Keil and Robey (1999) and Yik and Kwong (2006). The less tolerance for failure that individuals have, the less likely they would be attached to the same selected investment decision when it appears to be failing (Yik and Kwong, 2006). Likewise, the association between managers' high/low self-esteem and their choices, affected managers' de-escalation decisions (Sivanathan et al., 2007; 2008). The more managers were given the opportunity to verify their wounded ego the less they were motivated to justify past actions and, accordingly, were less likely to escalate bad decisions, further, managers who were allowed to bring to mind their high self-esteem, who were allowed to reflect on an important personal value, and received feedback affirming an important ability not directly related to the decision they had made were more likely to decrease escalation,

finally, managers with high self-esteem who received feedback affirming an important ability that was directly related to their decision increased escalation of commitment to their decision.

Therefore, based on literature evidence above, the link between managers' escalation/de-escalation decisions and psychological determinants can be hypothesized as follows:

*H4: Psychological determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

## **2. Contextual Determinants**

While psychological determinants deal with factors related to managers' attempt to have a good self-image, other factors such as social, cultural, and political determinants are related to managers' attempt to be perceived as having a good self-image by others such as their society and their organization (Ross and Staw, 1993). They are seen as factors that are beyond managers' control and, as such, they are either labelled as contextual or structural determinants (Ross and Staw, 1986; 1993; Drummond, 1994; 1995; Newman and Sabherwal, 1996). In the current research, factors that are related to political interference, cultural values, and social traditions will be grouped under contextual determinants and each will be treated as an approach or avoidance attribute of escalation.

Social traditions, according to the existing literature, are seen as factors that influence managers' escalation/de-escalation decisions within two sets of variables. The first are linked to how the decision maker would like to be seen in his/her society, and the second set of factors are related to managers' need to justify their actions to other parties in their

organizations as well as the whole society (Staw and Ross, 1980; 1987a; Brockner et al., 1981; Drummond, 1994; Ryan, 1995).

The first set of factors share the idea that decision makers attempt to be known as tough and strong managers and also as heroes or leaders. And because heroes and leaders are known to face problematic and failing circumstances through staying and holding strong until they achieve success, they would persist and keep adding more resources to a failing course of action as an indication of leadership, whereas, on the other hand, withdrawing from a difficult situation is seen as an indication of weakness (Staw and Ross, 1980; 1987a). For example, managers' need to be seen as heroes (Lipshitz, 1995), or champions (Newman and Sabherwal, 1996; McElhinney and Proctor, 2005), which makes them anxious about their reputation (Harrison and Harrell, 1993), or avoid being embarrassed (Ryan, 1995). Additionally, managers might act in a way to enhance their personal image of respectability (Drummond and Hodgson, 1996), (Kisfalvi, 2000), to protect their credibility (Cuellar et al., 2006), and to save face (Brockner et al., 1981; Drummond, 1994, Lipshitz, 1995; Staw and Hoang, 1995).

The second set of factors is related to the idea that when managers might continue a project even if it is a failing endeavour in order to give the impression of a strong decision maker and consistency (Staw and Ross, 1980; 1987a) because management is identified with a project (Ross and Staw, 1993; Newman and Sabherwal, 1996), their actions are visible to other parties in the organization (Conlon and Wolf, 1980; Kirby and Davis, 1998), the publicity of the goal they are seeking to attain (Hollenbeck et al., 1989), and the

stated limits for the project are publicly announced (Keil and Robey, 1999). More forces could influence their decision such as management could either be externally or socially justifying their actions (Ross and Staw, 1986; Bobocel and Meyer, 1994; Keil et al., 2000), the threat of external justification is minimized (Simonson and Staw, 1992), and managers could be socially motivated to make a choice (Drummond, 1998; Rao and Monk, 1999) because of the existence of successful models of persistence (Ross and Staw, 1993; Newman and Sabherwal, 1996).

The influence of social determinants on managers' escalation decisions (Table 5.6) could be stronger and more obvious when managers' social needs are satisfactorily met and fulfilled (Staw and Ross, 1980). For example, project management would be gradually more committed to the project if they became personally identified with it (Ross and Staw, 1993), if publicly identified with their earlier decision (Lipshitz, 1995), if they were responsible for the project as they held tightly to it as if it was their own child (Keil, 1995), and if they were publicly identified with either the project or company's customers (Pan et al., 2006; 2009).

Fulfilling social needs would make managers continue funding a failing endeavour if managers needed to persist and be consistent in the oath of their personal word of honour to others (Lipshitz, 1995), if managers had the desire to maintain appearance (Drummond, 1994), if their need to maintain an external image of competence (Rao and Monk, 1999), and if the desire to maintain a consistent leadership was repeated in all project's pronouncements (Ross and Staw, 1993). More forces that explained managers'

consistency is their worry to be considered a failure by others (Pan et al., 2006), or their fear of confrontation, which would be overridden by a far worse fear of the potential consequences of continuance (Drummond, 1995) they attempt to defend their personal reinforcement history (history of success) because it might have been difficult for him to imagine a course of action not eventually being successful (Ross and Staw, 1993), or they were motivated by ego-defensiveness to save their reputation from being bad managers because they were seeking to prove that the second decision was correct (Drummond, 1997), and they believe that the troubled project will turn around (Ross and Staw, 1993) in order to save face (Keil, 1995), to be a role model (Pan et al., 2006), and to be seen as a strong champion who continued funding a failing endeavour (Pan et al., 2009).

More social trends that influenced managers' escalation decisions such as external justification (Keil et al., 2000; Gunia et al., 2009), where managers justify other institutions (Lipshitz, 1995) that they had no information about their opinions (Rao and Monk, 1999) as a part of managers' responsibility to external constituents such as shareholders (Pan et al., 2006) to assure those constituents that the investment project was a wise one (Ross and Staw, 1993). The existence of norms of modelling, equally, were considered as escalation of commitment attributes (Ross and Staw, 1993) whereas managers as a result of modelling do not hesitate to invest substantial sums in the failing venture, and kept doing so despite substantial losses as they believed that these investments would work out as similar ones had before (Kisfalvi, 2000).

Less social factors, compared to escalation forces, were considered as de-escalation attributes, such as the lack of managers' public identification with the project, the existence of successful models of persistence (Newman et al., 1996), managers being rewarded for the decision process rather than decision outcome, and managers were socially motivated to discontinue the project through minimizing the threat of external justification (Simonson and Staw, 1992) by providing assurance and shoulder blame (Heng et al., 2003).

Culture is a communicated scheme of techniques that verifies what we focus on, how we take action, and what we respect and value (Trompenaars, 1994) It could be seen through fundamental beliefs and ideas that explain how individuals should recognize, reason and think about problems (Schein, 1992). The importance of cultural determinants rises from the fact that individuals have an approximately different capability to notify elements in the route of their own ideas and favourites (Nisbett and Ross, 1980).

In the escalation/de-escalation literature, cultural determinants were linked to the personal characteristics of the decision maker in terms of his/her gender (Brockner et al, 1981; Bateman, 1986; Harrison and Harrell, 1993; Harrison et al., 1999; Cuellar et al., 2006), his/her level of education or training (Conlon and Garland, 1993; Harrison and Harrell, 1995; Tan and Yates, 1995; Goltz, 1999), his/her work experience (Jeffery, 1992; Harrison and Harrell, 1993), age of the decision maker (Bourgie, 2001; Cuellar et al., 2006), and his/her nationality (Chow et al., 1997; Harrison et al., 1999; Keil et al., 2000; Greer and Stephens, 2001; Salter et al., 2004).

With respect to the influence of those factors on managers' escalation/de-escalation decisions (see Table 5.6), Geiger et al. (1998) have recommended that cultural factors should be considered to influence escalation decisions. They have suggested four cultural elements based on Hofstede's (1980) study of cultural values: masculinity, individualism, power distance, and uncertainty avoidance. They further called for more literature to investigate cross-cultural effects in terms of different nationalities. However, nationality was figured as the most important factor that attracted escalation/de-escalation authors (e.g., Keil et al., 1995; Sharp and Salter, 1997; Harrison et al., 1999; Keil et al., 2000; Greer and Stephens, 2001; Salter et al., 2004; Liu and Liu, 2008), while gender as well as educational background attracted less attention (e.g., Garland and Conlon, 1998; Cuellar et al., 2006).

Examining gender effects in the escalation/de-escalation literature gave adverse results, for example, there was no difference found between male and female subjects' allocating decisions (e.g., Brockner et al., 1981; Harrison and Harrell, 1993). On the contrary, under failing conditions female subjects allocated more resources when someone else took the blame than male subjects (Bateman, 1986), or they were more likely to delay a failing project than men (Cuellar et al. (2006).

Other cultural determinants such as educational background was confirmed to influence managers' allocating decisions, for example, in laboratory experiments, under the influence of high degree of project completion, 88.24% Chinese graduate students compared to 59.67% MBA students agreed to allocate an additional \$1 million to the

failing project (Conlon and Garland, 1998). Further, subjects that held professional degrees such as Masters of Business Administration and had work experience were more interested in information regarding IRR, NPV than initial responsibility when making allocation decisions (Harrison and Harrell, 1995).

With regard to the influence of different nationalities on managers' choices, the results attained depended on the factors that were examined jointly with the influence of the nationality item. For example, when examined jointly with high sunk costs effect; American subjects had more tendencies to escalate their commitment than Finnish subjects (Keil et al., 1995). Likewise, American participants were more likely to escalate commitment than Mexican participants when the effect of nationality was manipulated with the influence of adverse selection conditions i.e., the presence of information asymmetry and managers' incentive to shirk (Salter et al., 2004). On the other hand, more Chinese participants had chosen to escalate compared to American participants when the effect of nationality was manipulated with the influence of adverse selection conditions (Harrison et al., 1999). Similarly, Mexican subjects were more likely to escalate commitment and were more confident of their decision than USA subjects when nationality was examined jointly with managers' desire of self-justification (Greer and Stephens, 2001).

Political factors are the seeking of interest in the allocation of limited resources (Drummond and Hodgson, 1996). In the escalation/de-escalation empirical literature these determinants comprised both internal as well as external forces. On the internal level



political determinants included chief executive of the project (Drummond, 1994), and chairman of the board (Newman and Sabherwal, 1996). While on the external level, were the political character of the city council (Drummond and Hodgson, 1996), city personnel officer (Drummond, 1994), political parties and federal government (Ross and Staw, 1993), relationships with other countries' governments and local institutions (Ross and Staw, 1986).

Although political determinants did not grab a large attention of the literature, however, those determinants have influenced managers' choice to either continue or withdraw from a failing project (Table 5.6). Managers' escalation decisions were influenced by political factors such as managers' worry to preserve the image of the city council (Drummond and Hodgson, 1996); managers gained the political support from external committees for the failing venture (Ross and Staw, 1993), and the support and commitment of the top management (Drummond, 1994; 1998; Pan et al., 2006). This political support was as Ross and Staw (1993) have reported in a case study that when the directors recommended cancelling the project because it exceeded the allocated budget, the project continued because of political pressures surrounding the project.

De-escalation of commitment, on the other hand, occurred because of the lack of political support to the failing project, as explained, in a case study by Newman and Sabherwal (1996: 38), by a manager "*we really needed somebody to stand behind us and say never mind, these are just temporary difficulties*". Therefore, managers aim to negotiate the failing project and available legitimating alternatives to be applied with the internal and

external constituencies to get the political support for the de-escalation decision (Montealegre and Keil, 2000).

**Table 5.6: Approach-avoidance Attributes for Contextual Determinants**

<i>Approach attributes</i>	<i>Avoid attributes</i>
Management identified with project	Lack of public identification
Consistent and strong leadership	Providing assurance
Maintain appearance	Existence of shoulder blame
Norms of modelling	Norms of modelling
Social justification	Lack of political support
Manager's reinforcement history	
Ego-defensiveness	
Save reputation	
Relations with other countries	
Relations with outside committees.	
Federal government prompt	
Executive chair interest	
Preserve the image of the council	

Therefore, based on literature evidence above, the link between managers' escalation/de-escalation decisions and contextual determinants can be hypothesized as follows:

*H5: Contextual determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

### **3. Organisational Determinants**

Organisational determinants, which several studies have named structural determinants, are linked to factors that transfer suitable values for the organization's employees to guide them in what they should say and do, which therefore would help holding the organization together (Robbins, 1996). In the escalation/de-escalation empirical literature they contain factors that are related to organisational culture and policy (Ross and Staw, 1993; Keil, 1995; Cheng et al., 2003). Few organisational determinants were examined through case studies such as organisational policy (Keil, 1995; Cheng et al., 2003), saving the company's reputation (Drummond and Hodgson, 1996), the significant linkage of the

project to the company's existence (Ross and Staw, 1993; Drummond and Hodgson, 1996; Kisfalvi, 2000), and the amount invested in technical side-bets (Ross and Staw, 1993; Sabherwal et al., 2003).

Most escalation/de-escalation authors found that managers might escalate commitment when their organisational culture persuades them to do so and they can only de-escalate when they get the support to withdraw from a failing course of action (see Table 5.7). Managers' escalation decisions, with regard to organisational determinants, were made because of the total size of the failing project; a large percentage of the company's assets were tied to the project and abandoning the project might cause the company's bankruptcy (Ross and Staw, 1993), i.e., the company's future potential as a business was tied up with this project (Kisfalvi, 2000), and the decision to go into the project's construction engaged more of just an investment; it involved other technical side-bets such as hiring planners and expertise for the project (Ross and Staw, 1993). Further, managers preferred escalation if the company had plenty of cash, if managers believed in the future of their company (Keil, 1995), if managers owed their authority stand to the existence of the department, and if they believed that protecting the organization's reputation as an important strategic asset (Drummond and Hodgson (1996).

**Table 5.7: Approach-Avoidance Attributes for Organisational Determinants**

<i>Approach attributes</i>	<i>Avoid attributes</i>
Saving company's reputation	Shortage of cash
Linkage of project to company's existence	Self-setting limits
High investment in technical side-bets	
Organisational culture (cash availability)	
Setting organisational limits	

Managers would favour to de-escalate commitment, with regard to organisational factors, because the company's fortune began to take a downgrade turn (Keil, 1995), or because of the direct manager's involvement in the setting of hurdle rates by their organizations (Cheng et al., 2003).

Therefore, based on literature evidence above, the link between managers' escalation/de-escalation decisions and organisational determinants can be hypothesized as follows:

*H6: Organisational determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

### **5.2.2.3 The Moderating Role of Project Audit**

Generally, audit could be defined as the gathering and assessment of facts about information to decide and report on the degree of connection between the information and the established criteria (Arens et al, 2006). It could be also defined as “*checking somebody else's accounting and reporting thereon*” (Kumar and Sharma, 2006: 3). Determining errors, mistakes and frauds is one of the important characteristics and objectives of audit (Kumar and Sharma, 2006). Three types of project audit were suggested by Arens et al. (2006) as follows:

- Operational audit.
- Compliance audit.
- Financial statement audit.

Both compliance and financial statement audits deal with the project at the end of its lifecycle, where the results and outcomes of the project are identified, therefore, the chance to influence factors that might be linked to the success of the project is not

available any more. For the aim of continuous monitoring, it is an advantage for all projects to be exposed to proper objective evaluation of their operation early in their life cycle when corrective actions could be efficiently attained (Parsons, 2006). In agreement with the aim and objectives of this research, the main focus would be on project operational audit, which is sometimes called performance or continuous audit.

Operational project audit deals with assessing the effectiveness and the efficiency of any part of the firm's operating actions and techniques (Arens et al, 2006), as it provides an independent evaluation of accomplishment, with the intention of knowing how well the project started and whether its aims are being attained, in addition to recognizing opportunities for development. The auditor, within this scope, acts in an advisory role as he/she suggests the results of the audit at the endings to guide the decision maker (Nalewaik, 2006). Once the findings of the auditing report and conclusions are discussed and worked out, several results might arise such as providing a tight and strong project and internal controls in addition to noticing reduction in errors, mistakes and overcharges (Nalewaik, 2006).

Project audit, as explained in Chapter three, is always considered as an important element in capital projects decision process given that it plays an important role in improving internal control, which accordingly reduces management mistakes and assists managers to make better decisions in order to reach their goals (Mukherjee and Henderson, 1987; Kim, 2006; Burns and Walker, 2009). However, this important element was neglected and ignored in the escalation/de-escalation literature. Despite a thorough search of the

literature, there is no study to the knowledge of the researcher, that examined the influence of project audit on managers' choices, even though few escalation/de-escalation authors have referred to the role of project audit indirectly through several terms, such as the availability of a progress report (Gosh, 1997), the regular evaluations of projects (Keil and Robey, 1999), the presence of project monitoring (McNamara et al., 2002; Pan et al., 2006), and the availability of locus of control (Korzaan and Morris, 2009).

Further, as noticed earlier in Chapter Four, the moderation effect in the escalation/de-escalation empirical literature endured from several shortcomings. The first was linked to the incapability of distinguishing between the moderator and the focal or additional independent variables (Rubin and Brockner, 1975; Jani, 2008), the second pointed to the absence of introducing the moderation assumption in those studies neither in their hypotheses nor in their results (Chow et al., 1997; Fox et al., 2009) and finally the limited number of studies (seven studies only) that examined the moderation influence (Rutledge, 1995; Brody and Kaplan, 1996; He and Mittal, 2007).

Therefore, to overcome these shortcomings this research looks at the effect of the operational project audit on managers' escalation/de-escalation decisions through assuming that when managers face a conflict situation where they have to decide on whether to continue or withdraw from a problematic project, they have to make their decision within the guidance of project auditing outcomes.

The outcome of the decision to proceed, which is influenced in the first place by escalation/de-escalation determinants (Figure 5.1) will be moderated by the effect of

operational project audit, based on the previous arguments made in the context of hypotheses *H1-H6* and the summary of relevant literature above, it is assumed that operational project audit plays a moderating role on the relationship that exists between each of the investigated escalation/de-escalation determinants and managers' choices. Therefore, it is hypothesized that:

*H7: Operational auditing plays a moderating role with respect to the determinants involved in the escalation/de-escalation decisions.*

### **5.3 Research Paradigm and Philosophy**

Research philosophy can be defined as the progress of the research background, research knowledge, and research nature (Saunders et al., 2009). It is the “*philosophical framework that guides how scientific research should be conducted*” (Collis and Hussey, 2009: 55). It is the starting point when the researcher is not clear about the significance of what action he/she is taking in terms of the research objectives, the embedded merit, the right/wrong and true/false assumptions, and whether it is sensible or not (Pring, 2000). There are three important reasons that Easterby-Smith et al. (2008) suggested for the usefulness of understanding the philosophical issues for the researcher: a) clarifying the research design, b) recognising the appropriate design, and c) identifying and creating the design that might be separated from their earlier experience as well as suggesting ideas of how to adapt the research designs to different conditions.

The research paradigm is about how to carry out a research, i.e., the philosophy that underlies the research (Gliner and Morgan, 2000). Research philosophy depends on epistemological and ontological assumptions, which will influence how the research

should be conducted and the methodology for data collection (Ryan et al., 2002; Creswell and Clark, 2011). Each theoretical perception represents a definite way of understanding the ontology; “*what is*”, as well as a specific way of understanding the epistemology; “*what it means to know*”, whereas both issues tend to merge together to address the structure of meaningful reality, i.e., it is difficult to keep ontology and epistemology apart conceptually (Crotty, 2012).

Epistemology deals with the theory of the nature of knowledge, its possibility, scope and general basis (Hamlyn, 1995). It involves what knowledge is and considers what counts as good knowledge (Greener, 2011). Epistemology is linked to providing a philosophical grounding for deciding what kinds of knowledge are possible and how we can ensure that they are adequate and legitimate (Maynard, 1994). The study of nature and validity of human knowledge depends on stressing the difference between knowledge and belief, either by emphasizing the role of human reason in knowing, or highlighting the importance of sensory perception (Wellington, 2012). Ontology deals with the theory of “what is” i.e., the characteristic of reality (Wellington, 2012). It is specifically the study of being (Greener, 2011), because it is linked to the nature of existence, and the structure of reality (Crotty, 2012). It is essential for the researcher to recognize the philosophical perception or paradigms of the research to understand the different combinations and arrangements of research methods (Easterby-Smith et al., 2002). In reality, there are two extreme paradigms, which are positivism and phenomenology.



Positivism, which is also known as the quantitative approach, relies merely on facts and solid knowledge, on experiences which can be observed by the senses (Tacq, 2011). It is regularly equated with the “scientific” approach because it is based on the idea that true knowledge is derived from the sense-perception of an objective, detached, value-free knower (Wellington, 2012). It is as Tacq (2011) explains: 1) what is real is positive, what is not real is negative, 2) what is meaningful and useful is positive, what is useless and senseless is negative, and 3) what is sure and can be determined exactly is positive, what is unsure and cannot be determined exactly is negative.

The positivism paradigm has been widely applied in management and business research, because of the philosophical perspective of the natural science (Saunders et al., 2009) where the aim is to seek generalization through “*hard*” quantitative data. The positivist researcher believes in objective knowledge of an external reality that is rational and independent of the observer, which makes positivism an objective, value-free, generalizable, and replicable type of knowledge (Wellington, 2012).

The phenomenology (qualitative) paradigm, which could be considered as an opposite to positivism (Tacq, 2011), assumes that there are “*things themselves*” to occur in our experience, that is, objects to which our understandings link, and lie at the heart of phenomenology (Crotty, 2012). It promotes studying of direct experience taken at face value; therefore, behaviour is determined by the fact of experience rather than by external objective and physically described reality (Remenyi et al., 1998). With this paradigm, researchers’ activity is influenced by their own beliefs and interests (Collis and Hussey,

2003). Therefore, researchers should concentrate on understanding and explaining what people think and feel and the ways they communicate together i.e., people's different experiences rather than searching for casual relationships through external factors (Easterby-Smith et al., 2002).

It is important for the researcher to clarify the paradigm he/she has chosen for the conducted research, as it influences and restricts the methodology selection, yet, neither of the two presented paradigms could be considered to be better than the other. Therefore, they should be considered as being on a continuum (Collis and Hussey, 2003), and researchers should not fall into the trap of thinking that one research approach is better than the other, as they are better at doing different things (Saunders et al., 2009). In this respect, Table 5.8 shows a summary of the distinguishing features of both positivism and phenomenological paradigms below.

**Table 5.8: Implications of Positivism and Phenomenological Paradigms\***

<i><b>Implications</b></i>	<i><b>Positivism</b></i>	<i><b>Phenomenology</b></i>
Observer	Independent	A part of what is being observed
Human interest	Irrelevant	The main drivers
Explanations	Must demonstrate causality	Increase general understanding of the situation
Research progress	Through hypothesis and deductions	Rich data is gathered from induced ideas
Concepts	Measured through operationalized	Stakeholder perspectives must be incorporated
Units of analyse	Reduced to simplest terms	May be complex
Sampling requires	Large numbers randomly selected	Small number of cases selected for specific reason
Generalization	Statistical probability	Theoretical abstraction

\*Source: Easterby-Smith et al. (2002)

Accordingly, this research is based on a positivistic philosophical perspective as evidenced by the following:

- A review of the approach-avoidance theory, suggested determinants and escalation/de-escalation literature has been conducted.
- The research hypotheses, informed by the extensive literature review, have been formulated (see section 5.2 above).
- The population and sample frame have been determined. It has been decided that the study will be on Saudi companies located in the port city of Jeddah.
- The research instrument and the operationalization of the study variables have been developed and a pilot study has been used to test and refine these research tools.
- A large scale questionnaire survey, of the Likert-scale type, has been administered to the target companies, resulting in a relatively large response rate, and a large data set for a quantitative analysis in line with the positivistic approach.
- The most appropriate statistical tools to be used for data analysis have been determined. In particular, the survey data collected will be analysed using multinomial logistic regression, and moderation multinomial logistic regression will be applied to the indirect effect (or interaction effect).
- Interviews have been conducted to expound on questionnaires' survey information and get an in-depth understanding of the escalation/de-escalation phenomenon in selected cases of corporate practice in Saudi companies

#### **5.4 Research Approach**

There are two research approaches according to the literature (Creswell, 2003; Sekaran, 2003; Greener, 2011): the deductive approach (theory testing) and the inductive approach (theory building).

According to the deductive approach, the theory testing starts from the general to reach the particular (De Vaus, 2014), with researchers following this approach to reach at their logical conclusions by applying reasons to a given set of ideas or theories (Sekaran, 2003). The theory is usually tested through the use of quantitative data (Greener, 2011), in other words:

**Theory → Observations/Findings**  
(Bryman, 2012)

Deductive arguments are accurate, given that the premises can be shown to be true, because the conclusion is actually included in the premises, which makes the researcher to be aware of what type his/her argument (logical, empirical, or choice) is, and whether there are sufficient grounds to support it (Greener, 2011). Therefore, the deductive research is in line with the positivism paradigm and quantitative research strategies (Saunders et al., 2009), whereas, the research begins with an idea or theory that is used to work towards a logical conclusion (Williams and May, 1996). The researcher is expected to start with a theory to develop hypotheses, which is followed by data collection to draw the findings in terms of confirming or rejecting the hypothesis and finally revision of theory (Creswell, 2003).

While, in an inductive approach, theory is the outcome of research, i.e., the process of induction involves drawing generalizable inferences from specific observations (Williams and May, 1996). The inductive approach process starts from observations, collecting data, analysing data to make sense of it and finally formulating a theory, in other words:

**Observations/Findings → Theory**  
(Bryman, 2012)

Inductive argument depends on evaluating actions cautiously as well as considering the logic of what the researcher is claiming. Greener (2011) suggest three issues that the induction argument depends on: a) whether the observations were accurate, regular and inclusive, b) whether the casual links between two events appear to be influential and strong, and c) whether the situation the argument is applied to is similar or the same as the perspective in which it was created.

Based on the argument above, the current research is designed on the deductive approach since hypothesis development is based on the literature of escalation/de-escalation as well as approach-avoidance theory. Quantitative data and statistical packages are used for hypothesis testing. In addition, interviews were conducted with three Saudi companies to gain a better and deeper understanding about the escalation/de-escalation phenomenon.

### **5.5 Data Collection Methods**

There are two main sources of data that can be used in a research; primary and secondary data (Collis and Hussey, 2003; Greener, 2011). If researchers collected data themselves, through conducting interviews, experimental data, or by using a survey to meet the research objectives then they are using original data that is known as primary data. But if researchers conducted a review of others' work, or were looking at resources that someone else has collected, either in books, journals, published statistics, annual reports, films, and government surveys then they are using secondary data.

There is no one data collection method that can be appropriate for all types of research, but every research requires one or more suitable strategies or data collection methods

(Remenyi et al., 1998; Wellington, 2012). These methods are determined according to the research philosophy or paradigm, and research approach in the aim of achieving research objectives (Saunders et al., 2009). In addition, they are determined according to several limitations such as time, cost, and the availability of people and facilities (Sekaran, 2003).

Each data collection method has its own advantages and disadvantages, it is argued that a mixture of research methods would provide more awareness of the topic being considered and it would strengthen the credibility of the research conclusions (Douglas, 1976). The perception of applying a multi-method approach in collecting data is known as triangulation which is “*the use of two or more methods of data collection in the study of some aspects of human behaviour*” (Cohen and Manion, 1994: 254). In this respect, the philosophical paradigm that is behind triangulation is what Schatzman and Strauss (1973) referred to as the “*methodological pragmatism*”, which they indicated as the status when the researcher considers any method of inquiry as a designed scheme of plans and procedures in order to get answers to certain questions about issues that he/she is interested in. This combination between quantitative and qualitative approaches will result in providing more understanding and insights into the context or settings as well as to confirm the findings with each other (Creswell and Clark, 2011). For example, in-depth interviews were recommended as a good method of obtaining qualitative insights that can verify data derived from a questionnaire survey (Easterby-Smith et al., 2002; Collis and Hussey, 2009).

As stated in Chapter One, the aim of this research is to investigate the (de)escalation phenomenon through the approach-avoidance theory in the Saudi corporate culture. Since this study is exploratory in nature, it is essential to use a combination of different quantitative and qualitative methods in order to answer the research questions. Therefore, a mixed-method research approach is adopted; an overview of each stage is shown in Table 5.9. The intention of the first stage of the research method is to validate the matters proposed in previous research and to uncover any issues that are missing. The outcome of this is the validation of the research topic and the formulation of the research hypotheses. In stage two, survey questionnaires were distributed, in order to collect necessary primary data to be used in testing the research hypotheses and answering the research questions. In stage three, interviews were conducted, to provide a more in-depth understanding of factors that either contribute to or inhibit the escalation/de-escalation phenomenon.

**Table 5.9: Overview of Research Methods**

<i>Stages</i>	<i>Stage 1</i> →	<i>Stage 2</i> →	<i>Stage 3</i>
Type of study	Preliminary study	Hypotheses testing	In-depth study
Objectives	<ul style="list-style-type: none"> <li>• Validate research topic.</li> <li>• Generate direction of research and hypotheses.</li> </ul>	<ul style="list-style-type: none"> <li>• Test hypotheses</li> <li>• Determine existence of links.</li> <li>• Generalize results.</li> </ul>	<ul style="list-style-type: none"> <li>• Highlight most relevant factors</li> </ul>
Method	<ul style="list-style-type: none"> <li>• Literature study</li> <li>• Pilot interviews.</li> </ul>	<ul style="list-style-type: none"> <li>• Survey Questionnaires.</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews</li> </ul>

Most of the escalation/de-escalation research known to the researcher, including recent studies, has relied on laboratory experiments (e.g., He and Mittal, 2007; Wong et al, 2008, Denison, 2009; Berg et al, 2009). In order to give a better understanding of this complex practical phenomenon in real companies, primary data were sought and collected by using two methods: a detailed questionnaire survey of a large sample of companies in Saudi

Arabia (quantitative), and conducting interviews (qualitative) with a subset of the responding companies.

### **5.5.1 Interviews**

Interviews allow the researcher to investigate what cannot be observed, such as the interviewees' thoughts, values, perceptions and feelings, therefore, it is believed that interviews allow the researcher to reach areas that other methods could not reach (Wellington and Szczerbinski, 2007). Greener (2011) suggested several reasons for conducting interviews: a) provide significant background on present situations that are linked to previous events, b) give chances for overlooked or excluded people to be heard, and c) improve other methods' results to help fill in the gaps. Further, supplementing other methods could be met through either exploring a research issue by complementing in-depth interviews with questionnaires (Saunders et al., 2009), or validating results of conducted questionnaires (Bryman and Bell, 2007).

There are several types of interviews such as structured, semi-structured, or unstructured (Wellington, 2012). Each has its own characteristics (see Table 5.10) that makes it appropriate for the purpose and type of the research conducted. Structured interviews are used within a positivistic paradigm and are more useful in a descriptive study, while semi-structured and unstructured interviews are more associated with a phenomenal approach and are more used in explanatory and exploratory studies (Collis and Hussey, 2009; Saunders et al., 2009).



**Table 5.10: Characteristics of Interview Types\***

<i>Characteristics</i>	<i>Structured</i>	<i>Semi-structured</i>	<i>Unstructured</i>
Control	Most control by interviewer	More control by interviewer	Some control on both sides
Flexibility	Less flexible	Flexible	Very flexible
Guidance	Guided by researcher's pre-determined agenda	Not completely pre-determined	Guided by the interviewee
Direction	More predictable	Less predictable	Direction unpredictable
Analysis	May provide easier framework for analysis	Relatively easy to analyse	May be difficult to analyse

\*Source: Wellington (2012)

As this study is both explanatory and exploratory, semi structured interviews were used as a supplement to the main primary data collection method which is survey questionnaires. These interviews were conducted with some of the survey respondents, to obtain and explore more in-depth information about the research issues, with specific emphasis on the escalation/de-escalation determinants in the Saudi context.

### **5.5.2 Survey Questionnaires**

Questionnaires are the most applied method when collecting data for social research (Oppenheim, 1992; Sekaran, 2003; Collis and Hussey, 2009; Saunders, et al., 2009; Greener, 2011). They are a type of survey that involve asking participants to respond to a variety of questions, often in a self-completion form (Greener, 2011). They seek to build up facts that could be subsequently quantified (Pring, 2000). The main advantages of self-completion questionnaires are that they may ensure a high response rate, given the benefits of a degree of personal contact, targeting the most appropriate sample very precisely, and overcoming the sample bias problem if any (Oppenheim, 1992; Collis and Hussey, 2009).

Survey questionnaires are widely used because they are relatively simple to put together and their costs are reasonable as they often do not involve researchers having to find time to gather data personally (Greener, 2011). They offer considerable administrative advantages, they represent an equal incentive to large numbers of respondents at the same time and they provide the researcher with a relatively easy data gathering (Walker, 1985). They could be used in different ways across social science disciplines, because they produce data that can be used to test hypotheses (positivism) as well as gathering qualitative (phenomenological) response (Greener, 2011). They aim to give a wider picture or an overview, since they can give answers to the questions: What? Where? When? How? Yet, it is not so easy to find out why? Casual relationships can rarely if ever be proved by a survey method since the emphasis is on fact-finding (Bell, 1993).

The type of survey questionnaire to be used partially depends on the methods of its distribution, with short questionnaires usually distributed electronically, and longer questionnaires sent by traditional mail (Pring, 2000). As explained in detail in Section 5.8 below, neither email nor traditional mail could be relied on to distribute the survey questionnaire. Therefore, the only feasible way to undertake the survey in this place was to deliver the questionnaires by hand. Among the advantages of self-administered questionnaires are the anonymity and flexibility they give the respondents, which should motivate them to give complete and truthful answers within a specified short time frame (Sekaran, 2003; Saunders et al., 2009).

## **5.6 Research Population, Sample and Target Responses**

The research population is the universe of elements or units from which the sample is to be chosen; therefore a sample represents a subgroup of the population (Sekaran, 2003; Weathington et al., 2012). There are several methods suggested to select a sample, the most common being simple random sampling, which is based on the idea that each unit in the population has an equal chance of being selected. The second method for selecting a sample is stratified random sampling, which is another variation of a simple random sampling but more complicated as the population is first divided into groups that share the same characteristics following which each category or group is randomly sampled (Greener, 2011; Weathington et al., 2012).

According to Bryman (2012), the decision about a sample size represents an arrangement between restrictions (time, cost), and the need for precision, where the larger the sample size the greater the precision, because when sample size increases sampling errors decrease. In the current research, this means the whole population (2002 companies in total) which is defined as Saudi companies operating in the three main business sectors (industrial, commercial and services), regardless of whether they are small, medium or large companies. All 2002 companies were listed in the statistical reports of the Jeddah Chamber of Commerce and Industry<sup>6</sup>.

The sampling method was stratified random sampling, where companies were first grouped into industrial, commercial and service companies, and then they were randomly

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<sup>6</sup> Each Chamber of Commerce and Industry holds a list of all Saudi companies that operate in the region in relation.

selected to ensure that a sample of each group is included in the research, which resulted in a reasonable representation of the population (Weathington et al., 2012). For the interviews, there was a question in the questionnaire (in Section Five) asking respondents if they would like to participate in the interviews. The number of interviewees depended on the answers to this question. Further, the targeted respondents are all senior company staff, including company managers, financial managers, project managers, and division managers. The rationale for choosing these respondents is that they are in a good position to complete the questionnaire and should have the necessary knowledge to provide accurate and useful data regarding the determinants that influence escalation/de-escalation decision in their companies.

### **5.7 Conducting the Interviews**

Semi-structured interviews were conducted with senior managers in three companies, using Arabic and/or English depending on the language choice of the interviewee. The choice of interviewees was based on their consent to be interviewed, as in section five of the questionnaire respondents were asked optionally, because of the sensitivity of the topic, to declare whether they accepted to be interviewed and were able to share their experience in dealing with project (de)-escalation cases.

The interviewees agreed to participate with the guarantee of full confidentiality and to receive a copy of the results of the research. However, to guarantee the success of the interviews, the process of conducting the interviews was as follows:

- Once approval for the interview was received the respective company was contacted to arrange the date and time for the interview.

- Prior to visiting each company, the questionnaire they completed and returned was studied in detail and a copy was made to take to the interview.
- Each interview was started in each company by the researcher who introduced herself and thanked the interviewee for completing and returning the questionnaire and granting the interview opportunity.
- Providing information about the nature of the research study, its objectives, and expected benefits, noting that the interviewees had already completed and returned the survey questionnaire, this was a short reminder to properly focus the interview right from the outset. A copy of the questionnaire they completed and returned was given to them before the start of the interview to help launch the discussions.
- The interviewees were asked first to talk about their experience and were left to explain how they initiated a specific project that then became problematic and explain in as much detail as possible how they made their escalation/de-escalation decisions.
- With the permission of the interviewees, the interviews were tape-recorded and notes were also taken during the course of the interview. All interviewees were open-minded about answering questions related to the cases they had first-hand experience with.
- At the end of the interview, the interviewee was asked if they had any questions or wished to add any comments. The interviews were concluded by thanking the interviewee and appreciation was expressed for giving their time, effort and cooperation.
- After finishing the interview and leaving the company premises, the interviewer went over the information again while it was still fresh in the mind to make sure the notes taken were thorough enough and remove any ambiguities to avoid misinterpreting the information at a later date.

## 5.8 Questionnaire Design, Translation, Piloting and Administration

### 5.8.1 Questionnaire Design

The design and construction of the survey questionnaire for the current study received a considerable amount of attention, as several requirements were taken into account when building up the stages of the questionnaire, taking into account best practice advice from several authors (see Table 5.11).

**Table 5.11: Questionnaire Features**

<i>Feature</i>	<i>Requirement</i>
Cover later	As the response rate can be influenced by the messages in the cover letter, the cover letter was written to briefly explain the importance and purpose expected benefits of the research project and invite the target respondents to take part in the survey.
Wording	Simple, direct and familiar language was used, avoiding insensitive or double negative questions.
Coordination	Three matters were considered in the coordination of questions and questionnaire: <ul style="list-style-type: none"><li>- Clear instructions about each section in the questionnaire were provided.</li><li>- Questions that are similar in content were grouped in the same sections.</li><li>- Questions started to be from general to more specific, moving through questions in a logical sequence, without making major shifts or gaps for the respondents.</li></ul>
Types and format	The type and format of the questions were considered to be as follows: <ul style="list-style-type: none"><li>- Closed questions were used, which most of included the option “other (please specify)”.</li><li>- A five-point scale was used in all questions except those regarding general information about the respondents and general information about the companies, as a five-point scale is perfectly adequate, while an increase to seven or nine points on a rating scale will not influence the improvement of the ratings’ reliability.</li></ul>
Layout and Appearance	The appearance and layout give an initial impression about the seriousness and importance of the questionnaire, therefore, it was considered that the questionnaires should be consistent in style, and the length of each question was kept as short as possible in a way that did not affect its content and meaning.

Source: information was summarized from: Oppenheim (1992), Dillman (2000), Easterby-Smith et al. (2002), Hair et al. (2003), Sekaran (2003), Cooper and Schindler (2006), Collis and Hussey (2009), Saunders et al. (2009), Gideon (2012) De Vaus (2014).

The survey questionnaire was designed to achieve several objectives:

- The research topic itself is a data deficient topic, as most of the existing studies are laboratory based (see Chapter Four) and even when they tried to simulate they did not necessarily reflect practical real life decisions. Hence, designing the survey questionnaire aimed to go far beyond the existing literature and capture the effects of

the whole phenomenon of escalation/de-escalation of commitment entirely from real life companies.

- Although a small number of studies examined the escalation/de-escalation of commitment phenomenon in real life single case studies, their individual results are too limited to be offer ground for generalisation. Hence the motivation and the need for a large scale survey study which, according to the researcher, is the first of its kind.
- The escalation/de-escalation topic is a sensitive area of investigation as it deals with failing projects that managers might be responsible for or they have faced during their career, which could cause managers to be embarrassed, particularly in a socio-cultural environment where admission of failure is a sensitive issue. Therefore, survey questionnaires were deemed the most appropriate primary data collection instrument to use with project managers in Saudi companies as the anonymity they offer would make managers more comfortable to fully participate in the study. This was eventually confirmed by the relatively high response rate of the questionnaire survey and the very low take up of interview requests (see Sections 5.7 and 5.8.2).
- All existing non-laboratory based-studies have been carried out in Western countries. Therefore, the design of the study's questionnaire is, according to the researcher's best knowledge, the first to deal with the escalation/de-escalation of commitment phenomenon in a developing country.

Several issues measures were considered taken when the survey questionnaire was being designed, in particular: a) linking the questionnaire to the research theoretical model, b) going back and forth to making make sure that all empirical critical variables that were examined in the escalation/de-escalation literature were captured and contextualised to suit the Saudi culture business environment and the study's theoretical model, and c) looking at various research projects in other subject areas that were achieved in Saudi

Arabia that used using survey questionnaires in order to pick up any useful tips that would assist the researcher to determine the features that should be paid attention to when targeting Saudi respondents on design, content, consistency and balance features.

The construction of questionnaire was gradual, taking into account the design and refinement of the study's theoretical model, objectives and questions and the careful scrutiny of the academic and business literatures. After ten detailed revisions, a finalised version of the question was printed and used in a pilot phase before full distribution on the 3<sup>rd</sup> of August 2010. The thorough revisions and redrafting of the questionnaire were made to ensure that:

- The questionnaire fully encompasses the research theoretical model and the empirical variables to be examined; therefore, the survey questionnaire was designed to obtain information including capital investment decision making, project evaluation, and determinants of managers' escalation/de-escalation decisions of Saudi companies.
- Internal consistency and balance were achieved in the questions by removing any unnecessary repetition, adding or rewriting questions to avoid respondents' boredom or fatigue and to make sure that the questions were free of any potential ambiguity or bias especially for such sensitive topic.
- Most care was taken to minimize the limitations of the questionnaires and to increase the response rate, therefore at the end of the first draft the questionnaire was translated to Arabic to look for whether the questions would be translate easily and pick the points that needed to change to suit the Saudi culture to avoid a badly designed questionnaire that would cause a low rate response.
- Revisions were made to decide on the type of questions to be included, i.e., yes or no; multi questions, or Likert scale questions. The decision was made to use 5-point Likert



scale for the core questions because of: the nature of the sensitivity and complexity of the topic, limitations of Likert scales as attitudinal scales, and the uniqueness of the Saudi context. Most care was taken to make sure that questions were constructed free from ambiguity and bias for every single item.

### 5.8.2 Content and Sources of the Survey Questionnaire

Table 5.13 summarizes the content of the questionnaire, variables measured and sources of each construct (for the full list of the 52 variables that make the two groups of determinants see Chapter 7 and Appendix A). First, the mapping of the survey questions to the research objectives and research questions is summarized in Table 5.12 as follows.

**Table 5.12: Mapping of Research Objectives, Questions and Survey Questions**

<i>Research Objective</i>	<i>Research Question</i>	<i>Relevant questions in the questionnaire</i>
<b><u>Objective One:</u></b> Examine the impact of project-specific determinants on managers' decisions to (de)escalate commitment.	<b><u>Question One:</u></b> What are the project-specific determinants that influence managers in Saudi companies to (de)escalate commitment in capital project decisions?	10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 22, 23, 24, 25, 27, 28, 29, 35, 36, 37.
<b><u>Objective Two:</u></b> Examine the psychological dimension in capital project (de)escalation of commitment decisions.	<b><u>Question Two:</u></b> To what extent are project managers in Saudi companies affected by non-project-specific factors when making (de)escalation of commitment decisions?	12, 13, 18, 31, 32.
<b><u>Objective Three:</u></b> Examine the extent to which contextual and organisational factors influence capital project (de)escalation of commitment decisions.		1, 2, 3, 4, 5, 6, 7, 8, 9, 23, 24, 26, 30, 33, 34.
<b><u>Objective Four:</u></b> Examine the moderating role that operational audit might have on project (de)escalation of commitment decisions.	<b><u>Question Three:</u></b> Does operational audit have a moderating role in the impact of escalation/de-escalation determinants on project (de)escalation of commitment decisions in Saudi companies?	3, 15, 16, 19, 20, 21, 38.

**Table 5.13: Content and Sources of the Survey Questionnaire**

Section	QN.	NI.	Scale & Type	Anchors	Question objective	Source	
One: General information	1	1	Open-ended	Choose the most appropriate answer	Know/ascertain the qualification and experience of respondents	Drury et al. (1993); Longden et al. (2001)	
	2	2					
	3	1	Multiple choice			Identify the company's business and performance	Innes et al. (2000); White and Fortune (2002); Gerdin (2005)
	4	1					
	5	1					
	6	1	Open-ended				
	7	1	Multiple choice				
	8	1	Open-ended				
	9	1	Multiple choice				
Two: Description of the capital investment process	10	1	Multiple choice	Choose the most appropriate answer	Identify and measure the company's formal or informal capital investment decision making process.	Farragher (1986); Innes and Lyon (1994); Pike (1996); Kester et al. (1999); Ryan and Ryan (2002); Bryde (2003); Laziradis (2004); Ekanem (2005); Alkaraan and Northcott (2006); Bouwens and Lent (2006); Carr (2006); Putra (2009) Bennouna et al. (2010)	
	11	5	1-5 Likert	Not important at all-Very important			
	12	5					
	13	10					
	14	7	Multiple choice	Choose the most appropriate answer			
	15	8	1-5 Likert	Not important at all-Very important			
	16	11					
	17	1	Multiple choice	Choose the most appropriate answer			
	18	1					
	19	4					
	20	1					
	21	3					
Three: Project evaluation and the de-escalation decision	22	1	Multiple choice	Choose the most appropriate answer	Identify and measure project evaluation techniques.	Wilcocks (1994); Delios et al. (2004); Boukendour (2005); Edvardsson and Hansson (2005); Diltz and Pence (2006); Sambasivan and Soon (2007); Bayer (2008); Han et al. (2009); Wright and Capps (2011)	
	23	6					
	24	1					
	25	1					
	26	5	1-5 Likert	Not important at all-Very important			
	27	1	Multiple choice	Choose the most appropriate answer			
	28	2	Open-ended	Indicate the appropriate answer			
	29	7					
	30	4	Multiple choice	Choose the most appropriate answer			
Four: Determinants of the de-escalation decisions	31	13	1-5 Likert	Totally disagree-Totally agree	Identify and measure de-escalation determinants that influence managers' decisions.	Devine and O Clock (1995); Harrison et al. (1999); Cheng et al. (2003); Zikmund-Fisher (2004); He and Mittal (2007); Sivanathan et al. (2007); Liu and Liu (2008); Slaughter and Greguras (2008); Berg et al. (2009); Fox et al. (2009); Pan et al. (2009)	
	32	15					
	33	5					
	34	11					
	35	8					
	36	6					
	37	9	1-5 Likert	Not important at all-Very important			

QN: question number, NI: number of items in each question

### **5.8.3 Questionnaire Pre-Testing and Translation**

As the questionnaire was to be distributed in Saudi Arabia, where the official language is Arabic, it needed translating from the original in English. The translation process, which followed the back translation method (Malhotra and Birks, 2007), went through several stages as follows:

- The final English draft of the questionnaire and the cover letter were translated by the researcher into Arabic (the researcher is a native bilingual Arabic speaker and experience university teacher).
- The Arabic version was given to two academics (bilingual speaker) in the English Department at the King Abdul-Aziz University in Jeddah to check the translation for any ambiguities, poorly worded questions or unfamiliar terms.
- The Arabic version was re-translated to English and given back to one academic in the Linguistics Department at King Abdul-Aziz University in Jeddah, whose original language is Arabic, to correct any errors, confusion and misinterpretation of meanings.

Copies of both the English and Arabic versions were also given to three Saudi academics in the Accounting Department at King Abdul-Aziz University in Jeddah, who hold a Ph.D. degree and have experience doing research on Saudi companies, to check both form and content of the questionnaire. As a result of the feedback received, a few modifications were made to produce an improved draft of the questionnaire.

Copies of the revised questionnaire were piloted in two stages. First both the Arabic and English versions were given to three bilingual local project managers from three different companies (large car dealership, medium petrochemical firm, large food manufacturer) to

get their professional opinion as practicing managers on the suitability of the questionnaire for the planned large scale survey. All three gave very positive feedback about the questionnaire and did not suggest any changes. An opportunity arose to get additional feedback from managers who were enrolled on a post graduate management accounting course at King Abdul-Aziz University. At their request they were given copies of the revised Arabic version of the questionnaire. After careful scrutiny of the questionnaire, but without filling it in, they stated, like the three managers from the first pilot phase, that there was no need to make any changes to the questionnaire. However, some commented that the questions about “disclosing the monetary amount or percentage of problematic projects” might not receive fair answers due to their sensitivity.

#### **5.8.4 Administration of Survey Questionnaires**

Once the final version of the questionnaire was ready, the process of delivering the questionnaire package to the 800 companies in the study sample began. The questionnaire package consists of the Arabic version and the covering letter (see Appendix B). The covering letter attached to the questionnaire had the logos of both King Abdul-Aziz University and the University of Huddersfield (where the researcher is registered as a PhD student). The covering letter briefly explained the study objectives, the importance of the respondent’s participation in the study and assurance of confidentiality for the respondent, and included the researcher’s and the supervisor’s contact details.

As mentioned in Chapter One (Section 1.5) and in Section 5.5.2 above, the questionnaire package was delivered by hand by the appointed male representative. The delivery by

hand or what is known in the literature on survey methods as the drop-off/pick-up (DOPU) method is superior to the alternatives of email and postal delivery even in countries such as the USA where these alternatives are feasible and reliable (Steele et al., 2001; Allred and Ross-Davis, 2010). What makes the DOPU delivery method superior, as demonstrated by the studies of Steele et al. (2001) and Allred and Ross-Davis (2010), is the increased notable benefits on both quantity and quality levels; on the quantity level it positively increases the response rate, which reduces the non-response bias, while on the quality level the researcher is able to determine whether the person meets the eligibility requirements to answer the survey, which increases the quality of data obtained.

For the present large scale survey, the DOPU delivery of the questionnaire was facilitated by the appointed male intermediary who was hired for the following reasons:

- Because the researcher is female, this makes it impossible for her to administer the questionnaire in person due to social restrictions in Saudi Arabia. This is the usual practice for conducting this type of research project in Saudi Arabia when the main researcher is a female.
- Because the questionnaire design for this study is fairly complex and long, thus ruling out distributing it by email to the target respondents.
- It is not feasible to send the questionnaire by traditional mail because it is a well-known fact to researchers in Saudi Arabia that companies not only they do not return email questionnaires they also do not return postal questionnaires.

The appointed male representative was given the list of target companies to deliver the questionnaires. A total of 800 questionnaires were distributed to companies in Jeddah City

during the period August-December 2010. The questionnaires were distributed in two waves of 400 copies each, during the August-October period (the first wave) and the October-December period (the second wave). On arrival at each company, the representative introduced himself, explained the purpose of his visit, and asked to be taken to the designated target respondent (see Section 5.6). Once with the target respondent, he gave him the questionnaire package and explained the overall purpose of the research project, the expected benefits and encouraged them to contact the researcher at any time if they had any queries, by using the researcher's contact details provided on the cover letter. In addition, he negotiated the time period for completing and returning the questionnaire, which on average took between one to two weeks. A total of 300 questionnaires were received back, providing a response rate of 35.4% (a full consideration of the response rate and non-response bias is provided in the next chapter).

## **5.9 Validity and Reliability**

In any research, it is critical to measure the validity and reliability of concepts; these issues become vital in positivistic research (Collis and Hussey, 2009). Whereas it is important to evaluate the goodness of the measures developed to make sure that the developed instrument measures exactly the concept that was set out to measure not something else (Sekaran and Bougie, 2010). Although reliability and validity seem very similar terms regarding their indication of accuracy and precisely, they have quite different meanings, especially when linked to evaluating developed measures of concepts (Bryman, 2012). Validity refers to the degree to which a test actually measures what it is supposed to measure, whereas reliability is linked to the idea of consistency, which is

concerned with whether a test gives consistent results across a range of settings, and is used by a range of researchers (Willington, 2012). The following sections will shed light on these terms and the extent in which they are applicable in the current research.

### **5.9.1 Validity**

Validity refers to the degree to which a measure really measures the concept that was designed to measure (Bryman and Cramer, 2005). The question of validity draws attention to whether the researcher is measuring the right concept or not (Cooper and Emory, 1995). Therefore, the concept of validity is concerned with the accurateness of the research findings, and their representativeness of the real situation (Collis and Hussey, 2009), which can be established through a comprehensive list of validity types such as face, content, and criterion-concurrent validity (Bryman, 2012).

#### **1. Face Validity**

Face validity is the mere appearance that a measure is valid, as it is the degree to which a measurement seems to measure what it is supposed to (Kaplan and Saccuzo, 1993). Face validity is an intuitive process, it can be achieved by asking expertise in the field to judge whether the measure seems to obtain the concept that is the focus of attention (Bryman, 2012). In the current research, face validity is obtained through the questionnaire development process of managers' escalation/de-escalation decisions: first by linking the questionnaire to the literature, second by receiving feedback from academics and managers, and third by piloting the questionnaire to project managers who were studying a

management accounting course as a part of their master programme in King Abdel Aziz university in Jeddah.

## **2. Content Validity**

Content validity refers to the degree to which the instrument gives an adequate representation of the conceptual domain that is designed to cover is measured (Sekaran, 2003). It can be achieved by a careful definition of the research topic and the items included in the measurement scale (Emory and Cooper, 1991), whereas content validity is the only type of validity for which the evidence is subjective and logical rather than statistical (Kaplan and Saccuzo, 1993). In the current research, experts in the project management field in both questionnaires and interviews through a critical and overall review of the literature ensured the content validity of the instrument.

## **3. Criterion Validity**

Criterion validity can be achieved when the researcher retains a criterion on which cases are known to differ and that is relevant to the concept in question (Bryman, 2012). In the current research content validity was established as the criterion measure is managers' decisions to continue, discontinue, or redirect the problematic project which all scales of variables were linked to.

### **5.9.2 Reliability**

Reliability refers to the consistency of a measure of a concept, i.e., the extent to which the instrument is without bias and consistent over time and across the different items in the instrument (Bryman, 2012; Sekaran, 2003; Sekaran and Bougie, 2010). It refers to



consistency; therefore it is a matter of stability that is concerned with the questionnaire robustness and whether or not it produces consistent results at different times and in different occasions (Easterby-Smith et al., 2002, Saunders et al., 2009).

In order to consider and assess the reliability concept, three prominent factors were suggested; including test re-test, internal consistency, and parallel (alternative) form. The most widely used is the form of internal consistency, which can be measured through the Cronbach Alpha test (Easterby-Smith et al., 2002; Saunders et al., 2009; Sekaran and Bougie, 2010; Bryman, 2012). The test calculates the average of all possible split-half reliability coefficients, and the computed value would range from zero (no internal reliability) to one (perfect internal reliability), where the value .80 to indicate an accepted level of internal reliability (Bryman, 2012).

In the current study, the internal consistency of the scales is measured through the application of Cronbach Alpha test for each construct of the study to consider whether or not the items built in the scale tended to measure the same concept (Bryman and Bell, 2007). Table 5.14 below shows the Cronbach alpha results of all variables (questions) that were measured with scaled items have passed the test (ranged from 0.855 to 0.989) and the obtained values exceeded the minimum value required to assess the reliability.

**Table 5.14: Results of Reliability Test**

<i>Variables</i>	<i>Questions</i>	<i>No. of items</i>	<i>Cronbach alpha</i>
Project identification stage	11	5	.955
Project development stage	12	5	.958
Project selection and implementation stage	13	10	.855
Project evaluation stage	15	8	.984
Project auditing	16	11	.988
Investment motivation factors	16	5	.937
Psychological determinants	31	13	.983
Contextual determinants	32	15	.986
Organisational determinants	33	5	.946
Financial determinants	34	11	.989
Strategic determinants	35	8	.984
Informational determinants	36	6	.970
Determinants	37	9	.961

### 5.10 Data Analysis Tools Used

Because the current study focuses on previous research conducted in the same area, the hypotheses suggested in Section 5.2 are tested using simple and multivariate data analysis. The software used for conducting the quantitative analysis was SPSS version 19. Before the regression analyses were performed the data extracted from the survey were tested to investigate several issues including the non-response bias, which was tested (see Section 6.2) through examining the difference between means (Mann-Whitney U test) and the relatedness of general aspects (Chi-square test). The reliability of some of the study variables that were presented on a scale such as capital investment decision process and de-escalation determinants were examined through the Cronbach alpha test (see Table 5.14). In addition, the assumptions required for multinomial logistic regression tests were examined and met (see Chapter Seven, Section 7.2). Once these tests were applied and results were thoroughly achieved, the full statistical analysis of the data was undertaken using the relevant techniques described below.

### **5.10.1 Descriptive Statistical Techniques Used**

The aim of the descriptive statistics in terms of frequencies, means, and standard deviation is to describe the Saudi managers' escalation/de-escalation decisions and determinants that influence these decisions in addition to Saudi managers' capital investment decision making process through the observed data that was collected within the distribution of survey questionnaires to companies in Jeddah City in Saudi Arabia.

### **5.10.2 Multinomial Logistic Regression (MLR) for Measuring Direct Effects**

Hypotheses *H1-H6* shown in Section 5.2 predict the expected direct effect between independent variables (escalation/de-escalation determinants) and the dependent variable (managers' decisions to continue, withdraw, or re-direct a failing project), and explain the behaviour of the dependent variable on the basis of these independent variables. These hypotheses are tested using Multinomial Logistic Regression. The test was employed because the dependent variable is not continuous (i.e. it is dichotomous).

### **5.10.3 MODPROBE Macro for Measuring the Moderated Effect**

According to Wu and Zumbo (2008) the moderation effect is a special case of an interaction effect (indirect effect), which suggests the range that the independent variable most strongly (or weakly) causes the dependent variable, basically, the moderator modifies the strength or direction of a causal relationship. Based on this definition hypothesis *H7* (see Section 5.2.2.3) was formulated. The hypothesis focuses on the possible impact of interaction effect of project auditing on the relationship between escalation/de-escalation determinants and managers' decisions. In order to examine this

hypothesis the MODPROBE Macro test that was developed by Hayes and Matthes (2009) is applied.

### **5.11 Summary**

This chapter focused on explaining and discussing the research model and methodology of the current study. The research model and hypotheses were built and developed to be in agreement with the research objectives, considering the direct and the indirect influence of escalation/de-escalation determinants on managers' choices in Saudi companies and according to several significant gaps and justifications that were identified through the literature review that was carried out in Chapters Three and Four.

Further, a mixture of paradigms and a mixed-methods approach was adopted to achieve the research objectives. The data were collected for this purpose using a questionnaire survey and analysed by different statistical methods, namely: Descriptive Statistics, Multinomial Logistic Regression, and MODPROBE Macro test provide reasonable and acceptable results. The quantitative data are supplemented by data from interviews and relevant tests were applied to establish validity and reliability issues.

The detailed analysis of all the data collected will be presented in next three chapters as follows: Descriptive statistical analysis (Chapter Six), inferential statistics (Chapter Seven), and description and analysis of conducted interviews (Chapter Eight).

## **Chapter Six**

### **Descriptive Statistics of Corporate Project (De)-Escalation Decisions in Saudi Companies**

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#### **6.1 Introduction**

Application of the correct statistical techniques is a necessity in any research project in order to obtain meaningful results in accordance with the research objectives and questions. All the statistical analysis for the present study covering all research questions are presented in this chapter and the next. Immediately below in Section 6.2 the current study's response rate is presented and discussed, followed by a full analysis of non-response bias. Sections 6.3 and 6.4 comprise of information about the respondents and their companies. Sections 6.5-6.7 present the descriptive statistics for the capital investment and escalation decisions as well as the determinants of the (de)-escalation of commitment. Section 6.8 concludes this chapter.

#### **6.2 Analysis of the Study's Response Rate and Non-response Bias**

##### **6.2.1 Comparative Analysis of the Response Rate**

As stated in Chapter Five, out of the 800 copies of the survey questionnaires that were distributed to the targeted companies in Jeddah City, a total of 300 were completed and returned in two waves. Careful scrutiny revealed that 26 of those were missing answers to critical questions in the survey. In agreement with established quantitative research guidance (e.g. Sekaran, 2003), these 26 questionnaires were removed and not considered

for further analysis, leaving 274 usable questionnaires thus yielding a 35.4% usable response rate (see Table 6.1).

**Table 6.1: Frequency and Percentage of Response to Survey**

	<i>First wave</i>	<i>Second wave</i>	<i>Total</i>
Number of Distributed questionnaires	400	400	800
No response	208*	292	500*
Received	192	108	300
Unusable (partially completed)	12	14	26
Total usable	180	94	274

\*This figure includes the 10 that initially were approached for views about the viability of the research topic (see Chapter One, Section 1.4).

The response rate was calculated by the following equation:

$$\text{Response rate \%} = \frac{\text{Number of usable questionnaires}}{\text{Total number of sample - ineligible copies}} \times 100$$

$$\text{Response rate \%} = 274 / (800-26) \times 100 = \mathbf{35.4\%}$$

Saunders et al. (2009) pointed out that the response rate of self-administered questionnaires is between 30 and 50%. However, such ball park figures are not specific enough to be used as a firm benchmark. There are many factors that affect response rates, including population type and sample size, sensitivity of the research topic, the design of the data collection instrument and mode of administration, and cultural considerations (Dillman, 2000; Shih and Fan, 2008; Rao, 2009; Gideon, 2012; De Vaus, 2014). Hence the variable response rates reported in survey based research, such as those of the studies of capital investment practice in Croatia: 25% (Lidija and Silvije, 2007) and India: 30% (Verma et al., 2009), management accounting practice in the Arabian Gulf countries: 19% (Joshi et al., 2011), success vs. project failure in Saudi Arabia: 17% (Alfaadel et al., 2012).

The current study's response rate could be considered within the usual range of values for this type of survey carried out in large populations for respondents that have no individual purpose to take part in the survey (Kapetanopoulou and Tagaras, 2010), not to mention the socio-cultural and sensitivity of the topic. For a more specific comparison, the study of direct relevance in terms of research topic is that by Keil et al. (2000) who used a large sample to generate response. However, not only they achieved a much lower rate, but according to their own many stated limitations and those highlighted in Chapter 4 (Section 4.7), they did so by examining a very small set of variables for one type of project only (i.e. software projects) and relying on the process of answers from people who were not directly responsible for project escalation decisions. Therefore, taking into account the socio-cultural context of the present study, the sensitivity of the topic, and the comprehensive content and length of the survey questionnaire, the response rate of nearly 36% can be considered relatively very high.

In addition to non-response bias tests, among the techniques usually used to gauge the strength of a survey is by looking at the margin of error (or sampling error). Assuming a confidence level of 95%, the margin of error for a sample size of 800 companies should be between 3%-4% (Gideon, 2012), or to be more precise 3.46% (calculated with critical value of  $Z_{\alpha/2} = 1.96$ ,  $E = Z_{\alpha/2}/(2\sqrt{n})$ ). Given the population of 2002 companies sampled from (see Chapter 5, Section 5.6), the margin of error is actually smaller at only 2.685% for the present study, meaning that the chosen sample size is higher than the number required for it to be representative of the population of companies and the greater the accuracy of the survey conducted.

Besides the margin of error there are, as explained by Gideon (2012), other very important factors - or non-sampling errors such as coverage and measurement errors - that affect the robustness of a survey. The measures taken in the present study to minimise the effect of non-sampling errors on the response rate include the right design of the research instrument, the careful selection of target respondents (i.e., project, financial managers) and the implementation of the drop-off pick-up later (or DOPU) method in distributing the survey questionnaires (see Chapter Five, Section 5.8.4). This obviously necessitated taking risks and incurring costs that were avoided by those who opted for laboratory-based studies (see Chapter Four). For instance, despite the sensitivity of the topic and the socio-cultural considerations that could have derailed any attempt at collecting primary data, it was decided that the risk of developing and administering a comprehensive questionnaire was worth taking for a serious research project of this nature. As pointed out by Dillman (2000) and De Vaus (2014), a necessarily long questionnaire needs to be used with specialised topics (in this case escalation commitment) and specialised respondents (in this case managers directly involved in the escalation decisions), as using short questionnaires trivialises the research and brings low response. Moreover, using the DOPU method to administer the questionnaire to 800 companies located in various parts of Jeddah city, consumed significant resources, particularly travel time and money (with an average of four car journeys made to-and-from each company, petrol cost, and fees paid to the male intermediary employed in the DOPU process). In the light of the above, it can be said that the relatively high response rate achieved is a good return on the investment made in constructing and conducting the study's survey.



### **6.2.2 Analysis of the Non-Response Bias**

Rogelberg and Loung (1998) suggested four reasons for target respondents not to take part in a survey: (a) they were never given the survey, (b) they were not capable of completing the questionnaire, (c) they lost or failed to remember the survey out of carelessness, or (d) they had made up their mind not to respond to the survey. Non-response in the current self-administered survey is attributed as follows:

1. A total of 175 refused to participate in the survey altogether, giving no reason for their refusal.
2. A total of 125 did not participate because their company's policy does not allow them to answer any questionnaires.
3. A total of 200 did not have the time to respond or to complete all questions.

Due to the large number of non-respondents, the ability to generalize the findings of this study might be affected. Hence, there was a need to test for non-response bias, which requires comparing the responses from the first mailings of the survey questionnaires to those from the subsequent reminders in order to determine any significant differences (Armstrong and Overton, 1977). If there were no substantive differences in the answers between those two groups (early and late respondents), it could be argued that the non-responding sample would also not differ. This is based on the assumption that non-respondents tend to have answers most similar to those of late respondents (Panacek, 2008), and is in agreement with what Rogelberg and Luong (1998) have suggested that late respondents would have been non-respondents if the survey's deadline was observed.

In this study, the first 400 copies that were handed out produced a total of 192 replies, 180 of which were usable. Another 108 replies were received, where only 94 responses were

accepted as usable after another 400 copies were handed out. To test for non-bias response, the following procedure was used: (a) determining whether there are any significant differences between the means of key variables (Section 6.2.1), and (b) testing the degree of relatedness for the general aspects of the responding companies (Section 6.2.2). Both tests have been applied as explained below.

#### **6.2.2.1 The Difference between Means**

To determine whether there were any significant differences between the means of the key variables, the Mann-Whitney U test was applied, where the key variables are the *project-specific* (financial, strategic, and informational) and *non-project-specific* (psychological, contextual, and organisational) determinants. This is a non-parametric test that is applied to find out whether two independent samples have been drawn from populations with the same distribution, without assuming whether the population samples have roughly the shape of a normal distribution. If the samples are from the same population, it is reasonable to assume that the means of the ranks assigned to the values of the two samples are more or less the same (Linsely and Lawrence, 2007).

Before carrying out the Mann-Whitney U two-tailed test, the following points were noted:

a) the first group of responses consists of the usable 180 received from the first survey wave, while the second group of responses consists of the 94 usable responses received from the second wave; b) the Mann-Whitney U test is usually applied to large samples (Nagarajan and Keich, 2009), and c) the targeted statistic is the  $p$  value, which the test mainly computes at the level of significance  $\alpha = 0.05$  (Nagarajan and Keich, 2009). The

following hypotheses were generated under the assumption that the (Asymptotic Significance)  $p > 0.05$ :

The null hypothesis: *Answers from the first group of respondents are similar to answers from the second group of respondents.*

The alternative hypothesis: *Answers from the first group of respondents differ from answers from the second group of respondents.*

Given that  $p > 0.05$  for all key variables (see Table 6.2), this indicates that there is no significant difference between the answers of the first and the second group of respondents, and, therefore, the null hypothesis stated above is accepted.

**Table 6.2: Results of Mann-Whitney U Test for Key Variables**

Question	Group	N	Mean Rank	Sum of ranks	Mann-Whitney U	Asymp. Sig. (2 tailed)
Project-Specific Determinants						
Mean of financial determinants	First	180	136.19	24513.50	8223.500	.702
	Second	94	140.02	13161.50		
	Total	274				
Mean of strategic determinants	First	180	134.86	24274.00	7984.000	.438
	Second	94	142.56	13401.00		
	Total	274				
Mean of informational determinants	First	180	141.01	25381.00	7829.000	.304
	Second	94	130.79	12294.00		
	Total	274				
Non-Project-Specific Determinants						
Mean of psychological determinants	First	180	140.84	25351.50	7858.500	.333
	Second	94	131.10	12323.50		
	Total	274				
Mean of contextual determinants	First	180	138.25	24885.00	8325.000	.828
	Second	94	136.06	12790.00		
	Total	274				
Mean of organisational determinants	First	180	135.00	24300.00	8010.000	.462
	Second	94	142.29	13375.00		
	Total	274				

#### 6.2.2.2 The Relatedness of General Aspects

In order to examine the degree of relatedness for the general aspects of the responding companies, the Chi-Square ( $\chi^2$ ) test for relatedness is applied. The test measures whether the variance of two categorical variables differs significantly; it is sometimes called the Pearson's Chi-Square test (Field, 2009). The test is based on comparing the frequencies observed in certain categories to the frequencies expected to be had in those categories by chance.

In this study, the main characters of the responding companies are: ownership type, number of employees, company capital, and company main business. In order to apply the  $\chi^2$  test for relatedness, regarding the group of respondents' assumption, the following two hypotheses were generated under the assumption that the (Asymptotic Significant)  $p > 0.05$  is at the level of significance:

The null hypothesis: *Frequency of the first group of respondents does not differ significantly from the frequency of the second group of respondents.*

The alternative hypothesis: *Frequency of the first group respondents differ significantly from the frequency of the second group of respondents.*

Given that the " $p$ " value is more than 0.05 (see Table 6.3) for all mentioned variables, then the null hypothesis is accepted and it is concluded that there is no significant difference between the frequency of the first and the second group of respondents.

**Table 6.3: Results of  $\chi^2$  Tests for Relatedness/Independence**

<i>Variable</i>	<i>Pearson Chi-Square <math>\chi^2</math></i>	<i>df*</i>	<i>Asymp. Sig. (2- sided)*</i>	<i>Notes</i>
Ownership type	11.345	6	.078	4 cells (28.6%) have an expected count of less than 5. The minimum expected count is .68.
Number of employees	145.681	123	.080	241 cells (97.2%) have an expected count of less than 5. The minimum expected count is .32.
Company's main business	.293	2	.864	0 cells (.0%) have an expected count of less than 5. The minimum expected count is 23.67
Company capital	72.035	65	.257	123 cells (93.2%) have an expected count of less than 5. The minimum expected count is .32.

\*df: degree of freedom, Asymp.Sig. (2-sided): asymptotic significance (p)

According to the results of both the Mann-Whitney U test and the Chi-Square ( $\chi^2$ ) test for relatedness, there is no-response bias and, therefore, the outcomes of the questionnaire survey can be generalized.

### 6.3 General Information about the Respondents

The first and the fifth sections of the survey questionnaire were designed to gather general information about the respondents. The first section was devoted to gathering general information regarding the respondents' total years of work in their current companies, years of work as project managers, job titles, years and positions in their companies, and main decision authorities related to their positions.

Responses to questions have considerably varied, where some of the questions were 100% answered, other questions received only 4% answers (see Table 6.4). The fifth section, which is related to providing demographic information such as age, gender and educational level, was designated 'optional' as it asked questions of a more personal

nature and it was therefore no surprise that it received only 1% response. However, when distributing and collecting the questionnaires, it was noticed that all the completed questionnaires were from male respondents.

**Table 6.4: General Profile of the Respondents**

<i>Years of work in current company</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
Less than 5 years	46	16.8	16.8
5-10 years	163	59.5	76.3
11-15 years	56	20.4	96.7
16-20 years	8	2.9	99.6
21-25 years	1	0.4	100.0
Total	274	100.0	
<i>Years of work as project managers</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
Less than 5 years	1	.4	9.1
5-10 years	8	2.9	81.8
11-15 years	2	.7	100.0
Total	11	4.0	
<i>Job Title</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
Project manager	107	39.1	39.1
Division manager	90	32.8	71.9
Financial manager	56	20.4	92.3
Company manager	5	1.8	94.1
Other job titles	16	5.8	100.0
Total	274	100.0	
<i>Years of work in current job</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
less than 5 years	203	74.1	74.1
5-10 years	65	23.7	97.8
11-15 years	5	1.8	99.6
16-20 years	1	0.4	100.0
Total	274	100.0	
<i>Years of work in previous jobs</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
less than 5 years	6	2.2	46.2
5-10 years	3	1.1	69.2
11-15 years	4	1.5	100.0
Total	13	4.8	
<i>Decision Making Authority</i>	<i>Frequency</i>	<i>Percentage</i>	
Conduct audit on active projects	236	86.1	
Starting new projects	154	56.2	
Make decisions about failing projects	105	38.3	
Other decision making	6	2.2	

The majority of the respondents (59.5%) have worked in their current companies for 5-10 years and spent between one to 19 years in their current jobs as project managers (39.1%), division managers (32.8%) or financial managers (20.4%). Respondents (5.8%) have

worked in other jobs such as assistants or representatives for project managers, financial managers, company managers, and division managers. Further, respondents' decision making authority included three main decisions: conducting audits on active projects (86.1%), starting new projects (56.2%), and making decisions about failing projects (38.3%). Other decision making authorities (2.2%) included assisting either project managers, financial managers, company managers, or division managers in the decision making process.

Given the nature of the information required by this research, these results were expected to be obtained because, as was explained in the preceding chapter, respondents who were involved in or know more about project management in their companies (e.g. project managers) were targeted to participate in the survey to make sure meaningful data on a complex phenomenon would be collected. Around three quarters of the respondents have been in their current jobs for less than 5 years, which is consistent with both the local government's saudization policy -that is implemented forcibly in both public and private sectors- and the oil booming period of 2004-2009 (i.e. the economic recovery) that resulted in the increase of investment in capital projects, and the demand for managers to run the projects.

It could be concluded that most of respondents had access to managing projects within the position they hold in their companies and the decision making authority they maintained, to qualify them to answer this research questionnaire with reasonable knowledge about problematic projects in their companies.

#### **6.4 General Information about the Responding Companies**

In addition to general questions about the respondents, the first section of the questionnaire was designed to also gather general information about the responding companies, in terms of their size, ownership type, number of years in operation, their main as well as the industrial sub sectors, and how long they have been operating in the most profitable sub sector. Tables 6.5 and 6.6 summarize these characteristics, where the response rate ranged from 97% to 100%.

The Saudi Arabian economy has moved towards the large corporation type (MOCI, 2013), but the number of Sole Proprietorship companies (38.7%) is still relatively high compared to corporation companies (28.5%) or General Partnership companies (14.6%). This is because, as was explained in Chapter Two, the Saudi companies' ownership type is still more influenced by family values.

The age distribution of companies shows that more than 95% of companies have been operating in the Saudi market for over 5 years. The size of most of responding companies ranged from medium to large whereas their (84.2%) declared capital was up to 100 million Riyals (\$26.67 million), and up to 10000 employees (89.8%), which made them more suitable to respond to the survey questionnaire. The participating companies' main business was consistent with the distribution of the Saudi markets in the Jeddah chamber of commerce and industry (see Chapter Two), where 38.7% of the responding companies operated in the services sector, 36.1% operated in the industrial sector and 25.2% worked



in the commercial sector. These results concord with the information provided in Chapter Two about the socio-economic context of the Saudi business enterprise.

**Table 6.5: General Characteristics of the Responding Companies**

<i>Company's Ownership Type</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
Sole Proprietorship	106	38.7	38.7
Corporation	78	28.5	67.2
General Partnership	40	14.6	81.8
Limited Partnership	30	10.9	92.7
Holding Company	15	5.5	98.2
Semi Government	2	0.7	98.9
Other	2	0.7	100.0
Total	273	99.6	
<i>Company Age</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
Less than 5 Years	3	1.1	1.1
5-10 Years	23	8.4	9.5
11-15 Years	78	28.5	38.1
16-20 Years	97	35.4	73.6
20-25 Years	38	13.9	87.5
More than 25 Years	34	12.4	100.0
Total	273	99.6	
<i>Company's Declared Capital</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
Less than 20 Millions	148	54.0	55.6
21-40 Millions	28	10.2	66.2
41-60 Millions	20	7.3	73.7
61-80 Millions	11	4.0	77.8
81-100 Millions	17	6.2	84.2
More than 100 Millions	42	15.3	100.0
Total	266	97.0	
<i>Company Market Share</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
Less than 20 Millions	14	5.1	18.7
21-40 Millions	12	4.4	34.7
41-60 Millions	6	2.2	42.7
61-80 Millions	10	3.6	56.0
81-100 Millions	7	2.6	65.3
More than 100 Millions	26	9.5	100.0
Total	75	27.4	
<i>Number of Employees</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
Less than 100	58	21.2	21.8
101-1000	154	56.2	79.7
1001-5000	21	7.7	87.6
5001-10000	6	2.2	89.8
10001-20000	25	9.1	99.2
More than 20001	2	.7	100.0
Total	266	97.0	

Several efforts were made by the Saudi government to encourage a diversified economy (Choudhury and Al-Sakran, 2001), which can be seen through the wide range of sub-businesses that responding companies operated either as the only activity (15.3% in the agriculture and food industries) or as part of several activities (10.2% in the building and construction sub-sector). They have been operating up to 25 years with the highest annual sales turn over sub-business (89.4%), while one third of them have been operating for 16-20 years with the highest annual sales turn over sub business.

**Table 6.6: Responding Companies' Main and Sub Business**

<i>Company's Main Business</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative Percentage</i>	
Services	106	38.7	36.1	
Industrial	99	36.1	61.3	
Commercial	69	25.2	100.0	
Total	274	100.0		
<i>Company's Sub Business</i>	<i>As the only activity</i>		<i>As part of several activities</i>	
	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
Agriculture & Food Industries	42	15.3	13	4.7
Transport	41	15.0	9	3.3
Petrochemical Industries	21	7.7	19	6.9
Industrial & Investment	17	6.2	22	8.0
Building & Construction	15	5.5	28	10.2
Retail	15	5.5	2	0.7
Hotel & Tourism	10	3.6	5	1.8
Tele & Information Technology	9	3.3	22	8.0
Multi Investment	9	3.3	9	3.3
Media & Publishing	8	2.9	4	1.4
Cement	6	2.2	24	8.7
Energy & Utilities	5	1.8	2	0.7
Real Estate Development	2	.7	11	4.0
Banks & Financial Services	2	0.7	4	1.5
Insurance	1	0.4	11	4.0
<i>Company Operating in Highest Sub business Years</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative Percentage</i>	
Less than 5 years	5	1.8	1.8	
5-10 years	23	8.4	10.3	
11-15 years	85	31.0	41.4	
16-20 years	92	33.6	75.1	
20-25 years	39	14.2	89.4	
More than 25 years	29	10.6	100.0	
Total	273	99.6		

## 6.5 Description of Capital Investment Process in the Responding Companies

To get a better understanding of the capital investment process (consistent with the literature review provided in Chapters Three and Four) in the responding companies, the respondents were asked to answer questions 10 to 21 in section two in the questionnaire. Question 10 addresses whether the capital investment process followed was formal or informal; questions 11-16 cover the formal steps in capital investment; and questions 17-21 any informal approach that the responding companies might have. These questions were fully answered by the respondents as summarised in Tables from 6.7 to 6.14.

Almost all participating companies follow a formal process when making their capital investment decisions(see Table 6.7) This finding agrees with that of existing studies on the structure of capital investment decisions in other countries (e.g. Klammer, 1972; Pike, 1988; Farragher et al., 1999; Alkaraan and Northcott, 2006).

**Table 6.7: Capital Investment Decisions Structure**

<i>Capital Investment Decisions Structure</i>	<i>Frequency</i>	<i>Percentage</i>	<i>M (S.D)</i>
Formal capital investment decision process	272	99.3	1.0073 (.08528)
Informal capital investment decision process	2	.7	
Total	274	100.0	

The various aspects of the formalisation are presented next, detailing the steps followed when making a formal capital investment decision (Tables 6.8-6.12), and those steps followed when making an informal capital investment decision (Table 6.13).

### 6.5.1 Identification and Development of the Investment Project

Both the identification and the development of the investment project are reported as essential stages in the decision-making process as the respondents consider most of the question items they were presented with to be “*important*” as indicated by the mean score. This is consistent, as evidenced by the review of literature in Chapter Four, with the results studies in other countries (e.g. Istvan, 1961; Klammer, 1972; Petty et al., 1975; Ryan and Ryan, 2002; Alkaraan and Northcott, 2007).

**Table 6.8: Project Identification and Development Stages**

<i>Project Identification Stage</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
Time pattern of origination	6 (2.2)	24 (8.8)	28 (10.2)	139 (50.7)	75 (27.4)	3.930 (.963)
Process and submission of origination	7 (2.6)	39 (14.2)	69 (25.2)	122 (44.5)	35 (12.8)	3.511 (.975)
Reasons for idea origination	5 (1.8)	43 (15.7)	96 (35.0)	110 (40.1)	18 (6.6)	3.341 (.886)
Source of idea origination	9 (3.3)	129 (47.1)	78 (28.5)	51 (18.6)	5 (1.8)	2.683 (.877)
Due diligence (other steps)	0	0	0	0	1 (0.4)	5.000
<i>Project Development Stage</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
Forecasting and estimates	5 (1.8)	23 (8.4)	46 (16.8)	125 (45.6)	73 (26.6)	3.875 (.963)
Screening process	2 (.7)	26 (9.5)	52 (19.0)	136 (49.6)	56 (20.4)	3.801 (.899)
Extent of project screening	4 (1.5)	31 (11.3)	29 (10.6)	178 (65.0)	30 (10.9)	3.731 (.857)
Personal responsibility for the project	10 (3.6)	79 (28.8)	64 (23.4)	79 (28.8)	40 (14.6)	3.220 (1.127)
Future projections (other steps)	0	0	0	0	1 (0.4)	5.000

\*1=not important at all, 2=not important, 3=neutral, 4=important, 5=very important

In the project identification stage, the “*time pattern of origination*” was the most important item ( $M = 3.930$ ) and the “*source of origination*” was the least important item ( $M =$

2.683). While in the project development stage, the “*forecasting and estimates*” was the most important item ( $M = 3.875$ ) and the “*personal responsibility for the project*” was the least important but not insignificant item ( $M = 3.220$ ). Two items were added by two respondents (operating in the service sector) as decisive criteria, these are the project identification “*due diligence*” at the identification stage, and “*future projections*” during project development. As these items were not specifically identified through the extensive review of the literature prior to questionnaire construction, future similar research should look at these in more detail.

### **6.5.2 Selection and Implementation of the Investment Project**

Results here suggest a range of crucial items that responding companies consider within the project selection and implementation stage in addition to capital appraisal techniques used (Tables 6.9 and 6.10). All of the items in the selection and implementation stages were ranked “*very important*” with a mean score higher than 4 (Table 6.9), besides four out of five capital appraisal techniques were implemented in more than 50% of the responding companies (Table 6.10). These results are in agreement with those of highlighted in Chapter Four (e.g. Pohlman et al., 1988; Pike, 1996; Mukherjee and Hingorani, 1999; Carr, 2006; Alkaraan and Northcott 2007).

**Table 6.9: Project Selection and Implementation Stage**

<i>Project Selection &amp; Implementation Stage</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
Project implementation	0	3 (1.1)	6 (2.2)	32 (11.7)	231 (84.3)	4.805 (.517)
Project approval	0	8 (2.9)	15 (5.5)	51 (18.6)	198 (72.3)	4.614 (.725)
Knowledge of the appropriate cost of capital	1 (.4)	11 (4.0)	21 (7.7)	72 (26.3)	167 (60.9)	4.444 (.831)
Capital rationing process	1 (.4)	13 (4.7)	24 (8.8)	70 (25.5)	164 (59.9)	4.408 (.866)
Risk assessment	0	18 (6.6)	23 (8.4)	92 (33.6)	139 (50.7)	4.294 (.881)
Determining project appraisal techniques	2 (.7)	20 (7.3)	17 (6.2)	94 (34.3)	139 (50.7)	4.279 (.926)
Size of the project	1 (.4)	23 (8.4)	12 (4.4)	121 (44.2)	115 (42.0)	4.198 (.895)
Strategic importance of the project	2 (.7)	17 (6.2)	18 (6.6)	144 (52.6)	91 (33.2)	4.121 (.839)
Personal responsibility for analysis	3 (1.1)	24 (8.8)	22 (8.0)	112 (40.9)	111 (40.5)	4.117 (.964)

\*1=not important at all, 2=not important, 3=neutral, 4=important, 5=very important

More than one of five capital appraisal techniques is used to evaluate investment opportunities. The most used technique is the NPV (93.8%) and the least used is the ROI technique (36.1%). It is worth noting here that both the NPV and the IRR are considered as fairly advanced capital investment appraisal techniques that require a good grasp of the concepts of the time value of money, discounting, cost of capital, cash flow forecasting, inflation, the cost of capital, and preferably sensitivity analysis, before one can use with a sufficient degree of confidence.

As this study deals with corporate level capital investment decisions that mostly involve expensive long term projects, it can be safely concluded here that project managers in these companies are properly qualified in this respect. This gives credence to the formal approach to capital project management reported by all respondents and is in line with the

information on managers' educational trends that was presented in Section 2.5.1 in Chapter Two.

**Table 6.10: Capital Investment Appraisal Techniques**

<i>Capital Investment Appraisal Techniques</i>	<i>Frequency</i>	<i>Percentage</i>	
NPV (net present value)	257	93.8	
IRR (internal rate of return)	214	78.1	
PB (Payback) Method	164	59.9	
ARR (accounting rate of return)	138	50.4	
ROI (return on investment)	99	36.1	
<i>Number of Appraisal Techniques Used</i>			
	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative%</i>
Five techniques	30	10.9	10.9
Four techniques	58	21.2	32.1
Three techniques	122	44.5	76.6
Two techniques	56	20.4	97.0
One technique	5	1.9	98.9
Zero techniques	3	1.1	100.0
Total	274	100.0	

### 6.5.3 Evaluation and Auditing of the Investment Project

The results here (Table 6.11) suggest that both the project evaluation and auditing are essential stages in the decision-making process as respondents considered most of the items included to be “*important*” with a mean score higher than 3. This is consistent with other empirical study outcomes (e.g. Gordon and Myers, 1991; Kalmmer et al., 1991; Pike, 1996; Farragher et al., 1999; Azzone and Maccarrone, 2001; Klammer et al., 2002; Carr, 2006; Bennouna et al., 2010; IIA, 2011).

Auditing the investment project is an important stage in the evaluation of the capital investment project, where the “*response of the project manager to audit report*” was considered the most important item ( $M = 4.055$ ) while the “*clarity of roles in project evaluation*” was considered the least important item ( $M = 3.625$ ) of the evaluation of the

investment project. Further, “*consider risks involved of conducting audit*” was the most important step ( $M = 4.121$ ) while “*write up and submit the audit report*” was, in ranking terms, the least important step ( $M = 3.591$ ) of the project audit process.

**Table 6.11: Project Evaluation and Audit Stages**

<i>Project Evaluation Stage</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M</i> <i>(S.D)</i>
The response of the project manager to audit report	0 (.4)	18 (6.6)	37 (13.5)	129 (47.1)	88 (32.1)	4.055 (.850)
The assessment of audit reports	1 (.4)	27 (9.9)	29 (10.6)	133 (48.5)	82 (29.9)	3.985 (.917)
The effective use of team-based performance measures	3 (1.1)	23 (8.4)	38 (13.9)	123 (44.9)	85 (31.0)	3.970 (.944)
The quality of the project audit process	2 (.7)	29 (10.6)	41 (15.0)	135 (49.3)	65 (23.7)	3.852 (.929)
The effective use of performance incentives	3 (1.1)	25 (9.1)	45 (16.4)	143 (52.2)	56 (20.4)	3.823 (.900)
The use of project audit	8 (2.9)	29 (10.6)	41 (15.0)	157 (57.3)	37 (13.5)	3.683 (.938)
The clarity of roles in project evaluation	3 (1.1)	36 (13.1)	38 (13.9)	178 (65.0)	17 (6.2)	3.625 (.832)
<i>Project Audit Steps</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M</i> <i>(S.D)</i>
Step five: consider risks involved of conducting audit	1 (.4)	22 (8.0)	32 (11.7)	105 (38.3)	112 (40.9)	4.121 (.935)
Step eight: interpret information	2 (.7)	25 (9.1)	23 (8.4)	125 (45.6)	97 (35.4)	4.066 (.934)
Step four: emphasize essential factors	1 (.4)	19 (6.9)	34 (12.4)	132 (48.2)	86 (31.4)	4.040 (.868)
Step six: outline audit profile	2 (.7)	33 (12.0)	34 (12.4)	97 (35.4)	106 (38.7)	4.000 (1.034)
Step seven: gather more detailed information	1 (.4)	29 (10.6)	33 (12.0)	116 (42.3)	93 (33.9)	3.996 (.962)
Step nine: evaluate information	1 (.4)	26 (9.5)	34 (12.4)	140 (51.1)	71 (25.9)	3.933 (.894)
Step ten: record findings and recommendations	3 (1.1)	21 (7.7)	34 (12.4)	151 (55.1)	63 (23.0)	3.919 (.872)
Step three: collect basic information	2 (.7)	31 (11.3)	44 (16.1)	138 (50.4)	57 (20.8)	3.797 (.925)
Step two: prepare an audit plan	3 (1.1)	33 (12.0)	43 (15.7)	152 (55.5)	41 (15.0)	3.716 (.903)
Step one: agree to start the audit	3 (1.1)	27 (9.9)	33 (12.0)	192 (70.1)	17 (6.2)	3.709 (.773)
Step eleven: write up and submit the audit report	4 (1.5)	31 (11.3)	77 (28.1)	120 (43.8)	40 (14.6)	3.591 (.924)

\*1=not important at all, 2=not important, 3=neutral, 4=important, 5=very important



#### 6.5.4 Informal Steps in Capital Investment Decision

Only two out of 274 companies followed an informal process (see Table 6.12) when making their capital investment decisions. They both operate in the transportation sub-business and their main business is services, which is in agreement with the sector of investigated companies that applied informal capital investment process in the literature (e.g. Ekanem, 2005; Prather et al., 2009).

**Table 6.12: Steps in the Informal Capital Investment Process**

<i><b>The Main Reason for Approving the Project</b></i>	<i><b>Frequency</b></i>	<i><b>Percentage</b></i>	<i><b>Cumulative %</b></i>
Strategic importance of investment opportunity	1	.4	50.0
The annual capital budgeting round	1	.4	100.0
<i><b>The Person Responsible for the Project</b></i>	<i><b>Frequency</b></i>	<i><b>Percentage</b></i>	<i><b>Cumulative %</b></i>
Company manager	1	.4	50.0
Project manager	1	.4	100.0
<i><b>Type of Follow-Up Procedure to the Project</b></i>	<i><b>Frequency</b></i>	<i><b>Percentage</b></i>	<i><b>Cumulative %</b></i>
Continuous monitoring of the project	2	.7	100.0
Project audit play a role in the decision	2	.7	100.0
Post completion evaluation	1	.4	100.0
Evaluation of project teams	1	.4	100.0
<i><b>Items considered in the project audit</b></i>	<i><b>Frequency</b></i>	<i><b>Percentage</b></i>	<i><b>Cumulative %</b></i>
Monitor profitability	2	.7	100.0
Monitor revenue	1	.4	100.0

Applying an informal process does not mean the absence of a structure for the decision making process (as explained in Chapter Four). One of the two firms considers the project to be the strategic importance of the investment opportunity as a main reason for approving the capital project. Additionally, both companies believe that project audit plays a role in the capital investment decision, they apply continuous monitoring, and they consider monitoring profitability as one of the key items in their project audit.

## 6.6 Project Evaluation and (De)-Escalation Decisions

The third section of the survey questionnaire (Questions 22-30) was designed to gather detailed information about the management of failing projects. Respondents were asked to provide information regarding the final cost of the completed project, failure criteria applied, type as well as the timing of the most recent failing project, investment motivation factors, the prospects of the project, cost of a failed project, additional costs, and the type of impact the failing project had on the person responsible. Most of the questions were answered fully (see Tables 6.14, and 6.18), while one question received very few responses (“*monetary amount*” item in Table 6.13), confirming feedback received from the pilot study (see Chapter Five), as less than 6% answered it.

The results of determining the monetary aspects of the project show that the majority (61.7%) of failing projects’ final costs differed from the set budget, and 12% of final costs significantly exceeded the original budget. Regarding the monetary amount and percentage of final cost of failing project, the utmost majority of respondents prefer not to disclose this information, and the few who did stated amounts of the final cost of the failing project ranging from 2 to 60 million Saudi Riyals (approximately \$.534 to \$16 million) and the difference of the final cost from the original budget ranging from 7% to 45%. These results are similar to those reported by some previous studies (e.g. Szyliowicz and Goetz, 1995; Han et al., 2009).

Besides the original cost of the project, the most important costs are contractual penalties incurred to compensate customers and suppliers, followed by insurance cost, government

penalties and redundancy payments, indicating that projects are often not completed on time or at all successful and that contingency finance needs to be regularly factored into project budgets to account for cost changing factors such as delays and overruns. The lowest ranked other costs are joint-venture costs (less than 9% of the responding companies) noting that 39% of the companies are sole partnership companies, i.e. companies unlikely to be involved in joint ventures (see Table 6.4).

**Table 6.13: Monetary Aspects of the Project**

<i>The closure of final cost to set budget</i>	<i>Frequency</i>	<i>Percentage</i>	<i>M (S.D)</i>
Did differ from the set budget	169	61.7	1.857 (.603)
Did not significantly differ from the set budget	72	26.3	
Significantly exceeded the set budget	33	12.0	
Total	274	100.0	
<i>Monetary amount of failing project</i>	<i>Frequency</i>	<i>Percentage</i>	<i>M (S.D)</i>
Project final cost	9	3.3	1.400 (.507)
Difference from original budget in percentage	6	2.2	
Total	15	5.5	
<i>Additional cost for the failing project</i>	<i>Frequency</i>	<i>Percentage</i>	
Contractual penalties with customers	180	65.7	
Contractual penalties with suppliers	164	59.9	
Insurance costs	154	56.2	
Government penalties	96	35.0	
Redundancy payments	91	33.2	
Joint-venture cost	23	8.4	
Opportunity loss (other additional costs)	1*	.4	

\*The sum given by the respondent is SAR 1 million, or approx. \$0.267

The results of examining the criteria of failure applied for judging projects (see Table 6.14) show that the vast majority of the responding companies consider the project as a failure if its cost exceeded the set budget, while more than 50% believe that when a project exceeded its anticipated completion time it was a failure. These results are consistent with those reported in the literature (e.g. Al-Sultan, 1987; Pike, 1996; Assaf and Al-Hejji, 2006; Sambasivan and Soon, 2007; Wright and Capps, 2011).

**Table 6.14: Failure Criteria Applied to Projects**

<i>Failure Criteria Applied to Projects</i>	<i>Frequency</i>	<i>Percentage</i>
Exceeded set budget	257	93.8
Did not meet initial strategic objectives	221	80.7
Should not have been accepted in the first place	195	71.2
Exceeded anticipated completion time	159	58.0
New regulations	73	26.6

For the type of failing project, as shown in Table 6.15, the most frequent type is “*renewing old capital asset*” and the least frequent is “*buying new capital assets*”. Failing projects also seem to be a recurring event that is on the increase, given the frequency and percentage aspects indicated by the respondents.

**Table 6.15: Type and Time of Most Recent Failing Project**

<i>Type of most recent failing project</i>	<i>Frequency</i>	<i>Percentage</i>	<i>M (S.D)</i>
Renewing old capital assets	131	47.8	2.675 1.089
Expanding capacity	102	37.2	
Opening a new company branch	30	10.9	
Buying new capital assets	11	4.0	
Total	274	100.0	
<i>Time of the Most Recent Failing Project</i>	<i>Frequency</i>	<i>Percentage</i>	<i>M (S.D)</i>
Last Year	110	40.1	2.058 1.134
Two Years Ago	79	28.8	
Three Years Ago	59	21.5	
Four Years Ago	13	4.7	
Five Years Ago	11	4.0	
Other	2	.7	
Total	274	100.0	

It is interesting to note that what seems to drive the initial investment in projects that later turned out not to be successful is the availability of finance (i.e. as confirmed in capital expenditure budgets) as most respondents rank this highest motivating factor for approving projects ( $M = 4.394$  in Table 6.16). Other factors, although still important, come next in the pecking order. In the light of the information given in Chapter two about

the business environment in Saudi Arabia and the Government plans for accelerating economic growth, project managers seem to be more preoccupied with finding worthwhile capital projects than with how the finance them as capital expenditure budgets are taken from granted. These results concord with those of some previous studies (e.g., Edvardsson and Hansson, 2005; Dilts and Pence, 2006; Alkaraan and Northcott, 2007; Bayer, 2008; Celentano, 2008; Nini et al., 2009; Carneiro et al., 2011). It is worth noting here that one respondent stated “*expansion of business*” as a very important investment motivation factor but, as more 100 companies have identified expansion projects as the second highest type of failing project (Table 6.15), its sole mention here by the one respondent was more likely to give an example of strategic priority which is the second highest ranking among the items listed in Table 6.16.

**Table 6.16: Investment Motivation Factors**

<i>Investment Motivation Factors</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
Capital expenditure budget	3 (1.1)	5 (1.8)	25 (9.1)	89 (32.5)	152 (55.5)	4.394 (.815)
Company strategic goals	4 (1.5)	49 (17.9)	61 (22.3)	120 (43.8)	40 (14.6)	3.521 (.995)
Social impact of project	18 (6.6)	55 (20.1)	62 (22.6)	66 (24.1)	73 (26.6)	3.441 (1.257)
Expansion of business (other motivation factors)	0	0	0	0	1 (.4)	5.000

\*1=not important at all, 2=not important, 3=neutral, 4=important, 5=very important

The results of examining prospects of the failing project (Table 6.17) show that the majority of managers make the decision to de-escalate the failing project either by terminating (46.4%) or redirecting (29.6%) projects. Nevertheless, 24.1% of the managers neither terminated, nor redirected perceived failing projects, but instead escalated them by

committing more resources, a rather intriguing behaviour that the escalation literature has documented and tried to explain (e.g. Staw and Ross, 1987; Keil et al., 2000; Delios, 2004; Chakravorty 2009; Korzaan and Morris, 2009). The escalation of commitment is covered in more detail in the remainder of this chapter and through the inferential statistical analysis and case studies presented in the next two chapters.

**Table 6.17: Prospects of the Failing Project**

<i><b>What Happened to the Failing Project</b></i>	<i><b>Frequency</b></i>	<i><b>Percentage</b></i>	<i><b>Cumulative %</b></i>
Project was terminated	127	46.4	46.4
Project was redirected	81	29.6	76
More resources were added to project	66	24.1	100
Total	274	100.0	

Regarding the results of investigating the impact of the failing project on the person who was responsible for the project (Table 6.18), more than half of the respondents are found to no longer be involved with project management, and even losing their jobs altogether (in 36 of the cases). While not having succeeded with a capital project investment was claimed to have no impact on the person involved in the failure in 83 of the responding companies, the fact senior management in 190 of the 274 responding companies reacted to failure with decisive action (i.e. removing/sacking the person responsible for the failure), further confirms the importance of capital investments to the country's economic growth plans and reinforces the formal approach taken to oversee the investments. Some similarity to these results can be traced in the literature to the fairly recent works of Collins (2001), Parker and Skitmore (2005), Dilts and Pence (2006), Lui and Chan (2008) and Wright and Capps (2011).

An issue of controllability seems to also emerge from the answers received as those respondents who claimed no personal impact from failing projects, clarified their answers by adding that “*the decision is beyond the project manager’s authority*”, or “*it is not the decision maker’s fault to approve such a project*”. It may therefore be deduced from this that senior management, through the formal procedures in place, recognize and take into account non-controllable factors when evaluating cases of project failure and take remedial action accordingly.

**Table 6.18: Impact of Failing Project on Responsible Person**

<i>Impact of Failing Project on Responsible Person</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative %</i>
No longer involved with project management	154	56.2	56.2
No impact at all	83	30.3	86.5
Lost his job and left the company	36	13.1	99.6
Other impact	1	.4	100.0
Total	274	100.0	

Overall, the results above give a fairly clear picture of how failing projects are dealt with and evaluated in responding companies, especially where the monetary factor plays a key role throughout. In almost all cases the final cost differed from the set budget, which is the prime investment motivator and, by the same token, the most important failure factor. A large number of the failing projects were terminated, knowing that the additional costs for the failing project were contractual penalties with customers. Finally, the majority of responsible managers for the failing project were no longer involved with project management.

## **6.7 Determinants of the (De)-Escalation of Commitment Decisions**

The fourth section of the survey questionnaire (Questions 31-37) was designed to gather detailed information about the (de)-escalation of commitment decisions in the responding

companies by indicating the project-specific (financial, strategic, informational) and non-project-specific (psychological, contextual, organisational) factors that influence these decisions. It is worthwhile to mention right from the outset that the study findings summarised through the ensuing descriptive statistics can only be meaningfully compared to some of the results of studies reviewed in Chapter Four. The reason for selective yet focused comparison is twofold. First, excluded from the comparison are the laboratory-based studies because there is no real ground for like with like comparison given that they do not reflect company practice. Second, a whole sale comparison of the results of the present study to those of the non-laboratory-based studies is also not possible because of the many limitations of the latter as explained in Chapter Four.

Answers to the preceding questions ranged from 0.4% to 100%, with most of the questions receiving a 100% response.

### **6.7.1 Project-Specific Determinants**

Data presented in Tables 6.19, 6.20 and 6.21 shows the extent to which project-specific determinants in terms of financial, strategic and informational respectively influence managers' escalation/de-escalation decisions as follows.

#### **1. Financial Determinants**

The results of the current study show that all ten financial items (Table 6.19) influenced managers' (de)-escalation decisions. Seven out of ten financial items affected managers' de-escalation of commitment decisions, while the other three influenced managers' decisions to commit more resources to the failing project (escalation of commitment).



**Table 6.19: Financial Determinants**

<i>Financial Determinants</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
The withdrawal costs at a later date are much higher	5 (1.8)	24 (8.8)	34 (12.4)	113 (41.2)	98 (35.8)	4.003 (.999)
The availability of a more financially attractive investment opportunity	4 (1.5)	28 (10.2)	32 (11.7)	118 (43.1)	92 (33.6)	3.970 (.997)
The financial information clearly reflected the success and failure of the project	9 (3.3)	29 (10.6)	32 (11.7)	114 (41.6)	90 (32.8)	3.901 (1.076)
The availability of project's costs	3 (1.1)	31 (11.3)	28 (10.2)	166 (60.6)	46 (16.8)	3.806 (.886)
The availability of the project estimated revenues	4 (1.5)	30 (10.9)	15 (5.5)	193 (70.4)	32 (11.7)	3.799 (.838)
The availability of a limit for extending the estimated budget	7 (2.6)	29 (10.6)	34 (12.4)	150 (54.7)	54 (19.7)	3.784 (.965)
The limit for extending the estimated budget was publicly announced	15 (5.5)	76 (27.7)	77 (28.1)	75 (27.4)	31 (11.3)	3.113 (1.101)
The salvage value of the project is ignored	97 (35.4)	99 (36.1)	31 (11.3)	40 (14.6)	7 (2.6)	2.127 (1.126)
The extra funds required could not be raised in time to save the project	80 (29.2)	133 (48.5)	27 (9.9)	26 (9.5)	8 (2.9)	2.083 (1.014)
The decision maker realized sunk costs	91 (33.2)	118 (43.1)	37 (13.5)	23 (8.4)	5 (1.8)	2.025 (.984)

\*1=totally disagree, 2=disagree, 3=unsure, 4=agree, 5=totally agree

Regarding de-escalation of commitment, respondents ranked the “*the withdrawal costs at a later date are much higher*” item to have the highest degree of influence ( $M = 4.003$ ), while the “*limit for extending the estimated budget was publicly announced*” item to have the least degree of effect ( $M = 3.113$ ) on their decisions. Respondents, with relation to escalation of commitment, ranked the “*salvage value of the project is ignored*” item to have the least degree of influence ( $M = 2.127$ ) and the “*decision maker realized sunk costs*” item to have the highest degree of effect ( $M = 2.025$ ) on managers’ decisions.

These results are, as supported by the literature review in Chapter Four, to some extent in agreement with the findings of some previous case studies (e.g. Ross and Staw, 1993; Drummond, 1998; Keil et al., 2000; Pan et al., 2009). Therefore, these determinants can

be described and classified according to their effect on managers' escalation/de-escalation decisions in Saudi companies, which is in agreement with results of previous studies, and within the approach-avoidance theory as follows:

- *Approach* attributes: decision maker realized sunk costs, the salvage value of project is ignored, and extra funds required could not be raised in time to save the project.
- *Avoid* attributes: the availability of the project estimated revenues, the availability of project's costs, the availability of a limit for extending the estimated budget, the availability of a more financially attractive investment opportunity, the financial information clearly reflected the success and failure of the project, and the withdrawal costs at a later date are much higher.

## 2. Strategic Determinants

All seven strategic items listed in the questionnaire have been recognised by the respondents as factors that have influenced their (de)-escalation decisions (Table 6.20), with three items associated with de-escalation of commitment and the other four with the escalation of commitment.

**Table 6.20: Strategic Determinants**

<i>Strategic Determinants</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
The efficacy of resources utilization	1 (.4)	15 (5.5)	17 (6.2)	165 (60.2)	76 (27.7)	4.094 (.764)
The systematic continuous monitor of managers' actions	4 (1.5)	22 (8.0)	26 (9.5)	147 (53.6)	75 (27.4)	3.974 (.907)
The flexibility to restructure the project	14 (5.1)	42 (15.3)	20 (7.3)	130 (47.4)	68 (24.8)	3.715 (1.148)
The low frequency of project progress reporting	76 (27.7)	113 (41.2)	21 (7.7)	43 (15.7)	21 (7.7)	2.343 (1.248)
The low level of project risk	70 (25.5)	131 (47.8)	27 (9.9)	37 (13.5)	9 (3.3)	2.211 (1.071)
The low degree of project completion	75 (27.4)	141 (51.5)	19 (6.9)	33 (12.0)	6 (2.2)	2.102 (1.007)
The availability of a less strategically attractive investment opportunity	76 (27.7)	161 (58.8)	16 (5.8)	16 (5.8)	5 (1.8)	1.952 (.856)

\*1=totally disagree, 2=disagree, 3=unsure, 4=agree, 5=totally agree

In relation to the de-escalation of commitment, respondents ranked the “*efficacy of resources utilization*” item to have the highest degree of influence ( $M = 4.094$ ), while the “*flexibility to restructure the project*” item to have the relatively least effect on their decisions ( $M = 3.715$ ). On the other hand, the respondents ranked “*low frequency of project progress reporting*” to have the least degree of influence ( $M = 2.343$ ) and the “*availability of a less strategically attractive investment opportunity*” as the item with the highest impact on escalation decisions ( $M = 1.952$ ). These findings bear resemblance to those reported by some of the existing studies (e.g., Drummond, 1998; Pan et al., 2006).

Therefore, strategic determinants can be described according to their effect on managers’ escalation de-escalation decisions and could be classified according to the approach-avoidance theory in Saudi companies as follows:

- *Approach* attributes: the availability of a less strategically attractive investment opportunity, the low degree of project completion, the low frequency of project progress reporting, and the low level of project risk.
- *Avoid* attributes: the efficacy of resources utilization, the systematic continuous monitor of managers’ actions, and the flexibility to restructure the project.

### **3. Informational Determinants**

Descriptive analysis results show (see Table 6.21) that all five informational items influenced managers’ (de)-escalation decisions. Three informational items affected managers’ de-escalation of commitment decisions and two items influenced managers’ escalation of commitment decisions.

**Table 6.21: Informational Determinants**

<i>Informational Determinants</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
The credibility of the information source	4 (1.5)	16 (5.8)	24 (8.8)	143 (52.2)	87 (31.8)	4.069 (.876)
The timing of the information is helpful for the decision maker	2 (.7)	17 (6.2)	28 (10.2)	141 (51.5)	86 (31.4)	4.065 (.853)
The information is publicly available	17 (6.2)	36 (13.1)	33 (12.0)	116 (42.3)	72 (26.3)	3.693 (1.173)
The information is biased	63 (23.0)	122 (44.5)	22 (8.0)	49 (17.9)	18 (6.6)	2.405 (1.207)
The information about the failing project is ambiguous	116 (42.3)	125 (45.6)	15 (5.5)	15 (5.5)	3 (1.1)	1.773 (.864)

\*1=totally disagree, 2=disagree, 3=unsure, 4=agree, 5=totally agree

In relation to de-escalation of commitment, respondents ranked the “*credibility of the information source*” item to have the highest degree of influence ( $M = 4.069$ ), while the “*information is publicly available*” item to have the least degree of effect ( $M = 3.693$ ) on their decisions. Respondents, with regard to escalation of commitment, ranked the “*information is biased*” item to have the least degree of influence ( $M = 2.405$ ) and the “*information about the failing project is ambiguous*” item to have the highest degree of effect ( $M = 1.773$ ) on managers’ decisions.

These results are consistent conditionally with the outcomes of some previous studies summarised in Chapter Four (e.g. Keil, 1995; Keil et al., 2000; Pan et al., 2006). Therefore, informational determinants can be described and classified according to their effect on managers’ escalation de-escalation decisions in Saudi companies, which is consistent with the empirical literature, within the approach-avoidance theory as follows:

- *Approach* attributes: the information about the failing project is ambiguous and the information is biased.

- *Avoid* attributes: the credibility of the information source, the information is publicly available, and the timing of the information is helpful for the decision maker.

### 6.7.2 Non-Project-Specific Determinants

Data presented in Tables 6.22, 6.23 and 6.24 show the extent to which non-project-specific determinants in terms of psychological, contextual, and organisational respectively influence managers' escalation de-escalation decisions as follows.

#### 1. Psychological Determinants

The respondents have identified all the 12 psychological items listed in the questionnaire as factors that have influenced project (de)-escalation decisions in their companies (Table 6.22). Seven of the listed items affected de-escalation of commitment decisions while the other five influenced escalation of commitment decisions.

Regarding de-escalation of commitment, the respondents ranked the "*project initiated by a group*" item to have the highest degree of influence ( $M = 3.733$ ), while the "*manager's experience of guilt and regret about the project's failure*" item to have the least degree of effect ( $M = 3.302$ ) on their decisions. Respondents, considering escalation of commitment, ranked the "*manager has personal gains*" item to have the least degree of influence ( $M = 2.613$ ) and the "*manager's experience job insecurity*" item to have the highest degree of effect ( $M = 2.292$ ) on managers' decisions. Moreover, the item "*relationships*" was included as another psychological determinant that strongly influences a company's de-escalation decision.

**Table 6.22: Psychological Determinants**

<i>Psychological Determinants</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
Project initiated by a group	11 (4.0)	46 (16.8)	17 (6.2)	131 (47.8)	69 (25.2)	3.733 (1.131)
Manager has less tolerance for failure	11 (4.0)	56 (20.4)	8 (2.9)	122 (44.5)	77 (28.1)	3.722 (1.190)
Manager given the opportunity to state his low self esteem	16 (5.8)	51 (18.6)	10 (3.6)	115 (42.0)	82 (29.9)	3.715 (1.237)
Manager was already committed to a mental budget	15 (5.5)	52 (19.0)	15 (5.5)	130 (47.4)	62 (22.6)	3.627 (1.182)
Manager believes that the project is a failure and cannot be turned around	14 (5.1)	46 (16.8)	15 (5.5)	165 (60.2)	34 (12.4)	3.580 (1.066)
Manager was allowed to bring to mind his high level of self esteem	17 (6.2)	63 (23.0)	17 (6.2)	119 (43.4)	58 (21.2)	3.503 (1.229)
Manager experience of guilt and regret about the project's failure	20 (7.3)	75 (27.4)	19 (6.9)	122 (44.5)	38 (13.9)	3.302 (1.216)
Manager has personal gains	42 (15.3)	131 (47.8)	14 (5.1)	65 (23.7)	22 (8.0)	2.613 (1.226)
Manager was initially responsible for initiating the project	16 (5.8)	166 (60.6)	15 (5.5)	63 (23.0)	14 (5.1)	2.609 (1.060)
The desire to justify a previous decision	3 (1.1)	205 (74.8)	6 (2.2)	50 (18.2)	10 (3.6)	2.485 (.926)
Manager desire for self-efficiency	80 (29.2)	107 (39.1)	16 (5.8)	57 (20.8)	14 (5.1)	2.335 (1.239)
Manager experience job insecurity	83 (30.3)	111 (40.5)	13 (4.7)	51 (18.6)	16 (5.8)	2.292 (1.241)
Relationships (other psychological determinants)	0	0	0	0	1 (.4)	5.000

\*1=totally disagree, 2=disagree, 3=unsure, 4=agree, 5=totally agree

These results are consistent to some extent with the evidence found in the empirical literature as indicated in Chapter Four (e.g., Lipshitz, 1995; Ryan, 1995; Drummond, 1997; Pan et al., 2006). Therefore, psychological determinants can be described and classified according to their effect on managers' escalation de-escalation decisions in Saudi companies, which is consistent with the empirical literature, within the approach-avoidance theory as follows:

- *Approach* attributes: the desire to justify a previous decision, the manager was initially responsible for initiating the project, the manager experienced job insecurity, the manager's desire for self-efficiency, and the manager has personal interests.

- *Avoid* attributes: manager's experience of guilt and regret about the project's failure, the manager was allowed to bring to mind his high level of self-esteem, the project was initiated by a group, the manager was given the opportunity to state his low self-esteem, the manager has less tolerance for failure, the manager was already committed to a mental budget, the manager believes that the project is a failure and cannot be turned around.

## 2. Contextual Determinants

The descriptive analysis of responses shows that all 14 contextual items influence managers' (de)-escalation decisions (Table 6.23). Half of the contextual items seem to affect managers' de-escalation of commitment decisions and the other half influence escalation of commitment decisions.

Regarding de-escalation of commitment, the respondents ranked the "*political interference to discontinue the project*" item to have the highest degree of influence ( $M = 3.813$ ), while the "*manager is rewarded for decision process rather than decision outcome*" item to have the least degree of effect ( $M = 3.540$ ) on their decisions. Considering the escalation of commitment, the respondents ranked the "*effort the manager has put in the project is noticeable*" item to have the least degree of influence ( $M = 2.540$ ) and the "*manager is respected for his previous history of managing projects*" item to have the highest degree of effect ( $M = 2.208$ ) on managers' decisions.

These results are consistent to some extent with those found in the empirical literature as summarised in Chapter Four (e.g. Ross and Staw, 1993; Drummond, 1994; Lipshitz, 1995; Newman and Sabherwal, 1996; Kisfalvi, 2000; McElhinney and Proctor, 2005; Pan et al., 2006 Pan et al., 2009).

**Table 6.23: Contextual Determinants**

<i>Contextual Determinants</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
Political interference to discontinue the project	12 (4.4)	36 (13.1)	13 (4.7)	143 (52.5)	70 (25.5)	3.813 (1.091)
Manager educational background	10 (3.6)	46 (16.8)	19 (6.9)	111 (40.5)	88 (32.1)	3.806 (1.165)
Manager continuing a failing project would degrade his masculinity	16 (5.8)	48 (17.5)	14 (5.1)	111 (40.5)	85 (31.0)	3.733 (1.233)
Manager is politically supported to discontinue the project	19 (6.9)	50 (18.2)	11 (4.0)	108 (39.4)	86 (31.4)	3.700 (1.274)
Project and its goals were publicly announced	9 (3.3)	36 (13.1)	5 (1.8)	208 (75.9)	16 (5.8)	3.678 (.893)
Manager is socially motivated to discontinue the project	11 (4.0)	64 (23.4)	15 (5.5)	102 (37.2)	82 (29.9)	3.656 (1.239)
Manager is rewarded for decision process rather than decision outcome	20 (7.3)	53 (19.3)	18 (6.6)	125 (45.6)	58 (21.2)	3.540 (1.229)
Effort the manager has put in the project is noticeable	46 (16.8)	129 (47.1)	20 (7.3)	63 (23.0)	16 (5.8)	2.540 (1.183)
Existence norms of modelling	41 (15.0)	153 (55.8)	15 (5.5)	53 (19.3)	12 (4.4)	2.423 (1.094)
Manager is saving his reputation	77 (28.1)	114 (41.6)	10 (3.6)	53 (19.3)	20 (7.3)	2.361 (1.274)
Project is a key project in the manager's portfolio	40 (14.6)	165 (60.2)	11 (4.0)	47 (17.2)	11 (4.0)	2.357 (1.053)
Manager is externally justifying others	55 (20.1)	139 (50.7)	17 (6.2)	40 (14.6)	23 (8.4)	2.405 (1.201)
Manager cultural background	73 (26.6)	130 (47.4)	8 (2.9)	48 (17.5)	15 (5.5)	2.277 (1.190)
Manager is respected for his previous history of managing projects	84 (30.7)	120 (43.8)	11 (4.0)	47 (17.2)	12 (4.4)	2.208 (1.178)

\*1=totally disagree, 2=disagree, 3=unsure, 4=agree, 5=totally agree

Therefore, contextual determinants can be described and classified according to their effect on managers' escalation de-escalation decisions in Saudi companies, which is consistent with the empirical literature, within the approach-avoidance theory as follows:

- *Approach* attributes: project is a key project in the manager's portfolio, effort the manager has put in the project is noticeable, manager is saving his reputation, manager is respected for his previous history of managing projects, manager cultural background, manager is externally justifying others, and existence norms of modelling.
- *Avoid* attributes: project and its goals were publicly announced, manager is rewarded for decision process rather than decision outcome, manager is socially motivated to



discontinue the project, manager is politically supported to discontinue the project, manager educational background, manager continuing a failing project would degrade his masculinity, and political interference to discontinue the project.

### 3. Organisational Determinants

The descriptive analysis of the responses received shows that all four organisational items seem to influence managers' (de)escalation decisions (Table 6.24). Two of these determinants have been associated with de-escalation of commitment decisions and the other two items with escalation of commitment decisions.

**Table 6.24: Organisational Determinants**

<i>Organisational Determinants</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
The project was technically irretrievable	6 (2.2)	40 (14.6)	39 (14.2)	162 (59.1)	27 (9.9)	3.598 (.929)
Low investment in other technical side-bets of project	7 (2.6)	46 (16.8)	64 (23.4)	115 (42.0)	42 (15.3)	3.507 (1.024)
The linkage of project to organisation's strategic existence is significant	39 (14.2)	134 (48.9)	48 (17.5)	48 (17.5)	5 (1.8)	2.438 (.997)
Saving the organisation reputation	124 (45.3)	99 (36.1)	27 (9.9)	20 (7.3)	4 (1.5)	1.835 (.975)

\*1=totally disagree, 2=disagree, 3=unsure, 4=agree, 5=totally agree

Regarding de-escalation of commitment, the respondents ranked the “*project was technically irretrievable*” item to have the highest degree of influence ( $M = 3.598$ ), while the “*low investment in other technical side-bets of project*” item to have the least degree of effect ( $M = 3.507$ ) on their decisions. Respondents, considering escalation of commitment, ranked the “*linkage of project to organization's strategic existence is significant*” item to have the least degree of influence ( $M = 2.438$ ) and the “*saving the organization reputation*” item to have the highest degree of effect ( $M = 1.835$ ) on managers' decisions.

These results are to some extent, consistent with those summarised in the review of empirical literature in Chapter Four (e.g. Ross and Staw, 1993; Drummond, 1998). Therefore, organisational determinants can be described and classified according to their effect on managers' escalation de-escalation decisions in Saudi companies, which is consistent with the empirical literature, within the approach-avoidance theory as follows:

- *Approach* attributes: saving the organisation reputation and the linkage of project to organisation's strategic existence is significant.
- *Avoid* attributes: the project was technically irretrievable and low investment in other technical side-bets of project.

### 6.7.3 The Perceived Role of Project Audit

Descriptive analysis results show that applying project audit has, on the one hand, limited the influence of two of the non-specific determinants on project's (de)escalation decisions in respondents companies (Table 6.25). On the other hand, it increased the influence of project-specific determinants.

**Table 6.25: Applying Operational Project Audit**

<i>De-escalation Determinants</i>	<i>Used level in Frequency, and (Percentage) n=274*</i>					
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>M (S.D)</i>
Financial determinants	0	1 (.4)	112 (40.9)	0	161 (58.8)	4.580 (.516)
Informational determinants	0	0	1 (.4)	153 (55.8)	120 (43.8)	4.434 (.503)
Organisational determinants	1 (.4)	2 (.7)	27 (9.9)	183 (66.8)	61 (22.3)	4.098 (.612)
Strategic determinants	1 (.4)	2 (.7)	36 (13.1)	166 (60.6)	69 (25.2)	4.094 (.661)
Contextual determinants in terms of political effects	25 (9.1)	64 (23.4)	76 (27.7)	89 (32.5)	20 (7.3)	3.054 (1.103)
Psychological determinants	33 (12.0)	85 (31.0)	70 (25.5)	79 (28.8)	7 (2.6)	2.788 (1.068)
Contextual determinants in terms of social effects	41 (15.0)	89 (32.5)	68 (24.8)	69 (25.2)	7 (2.6)	2.678 (1.085)
Contextual determinants in terms of cultural effects	41 (15.0)	93 (33.9)	90 (32.8)	45 (16.4)	5 (1.8)	2.562 (.993)

\*1=not important at all, 2=not important, 3=neutral, 4=important, 5=very important

Within the implementing process of operational project audit, the majority of respondents considered “*financial determinants*” a very important ( $M = 4.580$ ) *avoiding* attribute for escalation decisions, while the item “*contextual determinants in terms of political effects*” was viewed the least important *avoiding* attribute for escalation decisions ( $M = 3.054$ ). Alternatively, “*psychological determinants*” were considered the least important/very important ( $M = 2.788$ ) *approach* attribute for escalation and “*contextual determinants in terms of cultural effects*” were viewed the most important/very important ( $M = 2.562$ ) *approach* attribute for escalation of commitment decisions.

Therefore, within the application of project audit, (de)escalation of commitment determinants can be classified, according to their effect on managers’ decisions in Saudi companies and within the approach-avoidance theory, as follows:

- *Approach* attributes: psychological determinants, contextual determinants in terms of social and cultural effects.
- *Avoid* attributes: financial determinants, informational determinants, organisational determinants, strategic determinants, and contextual determinants in terms of political influences.

## **6.8 Summary and Conclusion**

The aim in this chapter was to provide descriptive statistics based on original data collected with survey questionnaires to companies in Jeddah City in Saudi Arabia. The results of both the Mann-Whitney U test and the Chi-Square tests for relatedness have ruled out the presence of non-response bias, thus making it possible to generalise results from this large scale study which, to the researcher’s best knowledge, is the first of its

kind on the complex phenomenon of the commitment of escalation in capital project decisions.

A key generalizable finding, at least to the population of companies sampled from for the large questionnaire survey undertaken, is the widespread use of formal processes of capital project investment that take care of all stages of a project's life from its inception to post-completion audit. Central to these formal processes is the use of established techniques of capital appraisal, particularly the DCF techniques of NPV and IRR. The demand for and noticeable intensity of this formal approach are underscored by investment programmes dictated by the country's economic growth plans and carried through companies in the various industrial sectors represented by the 274 companies that have taken part in the present study. However, despite the systematic approach to all aspects of capital project investments, it has neither stopped investments from exceeding original budgets and eventually failing, nor prevented managers faced with the prospect of a failing project from pouring more resources into the project and thus escalating their commitment to it. This raises the question asked to how rational the reported (de)-escalation decisions are, knowing that sunk costs only appear to be a major determinant of escalation (66 companies) but are the least of concerns for the managers who de-escalated projects (208 companies). This may indicate that most project managers in the present study make prospectively rational decisions that avoid the much talked about sunk costs fallacy (Klimek, 1997; Baliga and Ely, 2011). Although, the formal corporate approach sometimes resulted in project managers being demoted and sometimes sacked as an expression of prospective rationality that curtails project mismanagement, failing projects

have not only been a commonly recurring event in the representative sample of companies but a seemingly pervasive and increasing one as well, creating the intriguing (de)-escalation of commitment phenomenon. The explanations offered by the respondents to the questionnaire survey as to the array of project-specific and other determinants that influence such commitment have justified the research design adopted for this study that incorporates, besides financial and technical factors, contextual and behavioural considerations which have so far largely been confined to the experimentation of laboratory-based studies. The results of the data analysis thus far also lend strong support to extending the study of the (de)-escalation of commitment phenomenon beyond the direct effect of a set of determinants to include an interaction term, in this case project audit, in order to unravel this phenomenon from the experience and perception of managers in a large sectional study in a developing economy environment.

The (de)-escalation of commitment is so complex that it is impossible to comprehend it through laboratory experiment settings. Although the results described above are statistically generalizable within the Saudi corporate decision making environment, they clearly indicate that more of this type of study based on real management practice need to be undertaken in different countries to be able not only to have a better understanding of the (de)-escalation phenomenon but also to inform and improve practice. The data richness of the current study and its contributions to knowledge will become more apparent in the next chapter through the detailed results of the multinomial logistic regression used in hypothesis testing, followed by the interview-based case studies developed in Chapter Eight.

## **Chapter Seven**

### **Hypotheses Testing: Analysis of the Determinants of (De)-Escalation Decisions and the Moderating Role of Project Audit**

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#### **7.1 Introduction**

This chapter presents the results of inferential statistical analysis. It consists of the following sections: construct definitions and statistical tools (Section 7.2), assessing multinomial logistic regression (MLR) assumptions (Section 7.3), testing of direct effect hypotheses (Section 7.4), and the analysis of the intervening role of operational project audit (Section 7.5). A summary of the hypotheses test results is provided in Section 7.6, followed by the chapter's conclusion in Section 7.7.

#### **7.2 Variables Definitions and Statistical Tools Used for Hypothesis Testing**

This section will first summarise, in relation to the study's theoretical model, the examined variables and explains or justifies the statistical tools are used in testing the hypotheses.

##### **7.2.1 Construct Definitions**

As mentioned in Chapter One, this study examines the relationship between project-specific/non-specific determinants and managers' (de)-escalation decisions in addition to the moderating role that operational audit might have on project (de)-escalation of commitment decisions in Saudi Arabia. As summarised in Table 7.1, the dependent variable is measured through managers' choices (likewise: Keil et al., 2000; Karlsson et al., 2002; Wong et al., 2006; Zhiyuan and Qing, 2008). Respondents were asked to make

one choice between three categories; (1) to continue adding more resources to the failing project, (2) to terminate the failing project, or (3) to redirect the failing project. Since the dependent variable consists of three categories (choices), where there is no underlying order to the categories, therefore, it is a categorical variable (Field, 2009; Hosmer et al., 2013). All independent variables including moderating levels of project auditing were measured on a 5-Likert Scale, which made them continuous variables (for a detailed definition of all independent variables see Chapter Five; Section 5.2).

**Table 7.1 Variables Conceptualisation and Operationalisation**

<i><b>Variables</b></i>	<i><b>Type</b></i>	<i><b>Definition</b></i>
Failing project decision	Dependent	Three decisions related to the failing project: add more resources/terminate project/redirect project.
Operational project audit	Independent/ moderator	All relevant project audit information: use of project audit, project audit in the evaluation stage, quality of project audit process, assessment of audit reports, response of project manager to audit reports, project audit steps.
<i><b>Project-Specific Determinants</b></i>		
Financial determinants	Independent	Factors related to the system of in and out cash flows: amount invested/amount expected of failing project.
Strategic determinants	Independent	Factors related to strategic investment decision-making issues where top management takes responsibility of.
Informational determinants	Independent	All relevant information: digits/description of specific condition related to failing project.
<i><b>Non-Project-Specific Determinants</b></i>		
Psychological determinants	Independent	Variables linked to decision maker's reactions/characters/feelings and emotions.
Contextual determinants	Independent	Factors beyond managers' control: political interference/cultural values/social traditions.
Organisational determinants	Independent	Factors related to organizational culture and policy.

### **7.2.2 Statistical Tools Used for Hypothesis Testing**

Multinomial logistic regression (MLR) is a statistical tool that is typically applied when the dependent variable is not continuous (or dichotomous; in this case it has three values as explained in Section 7.2.1), MLR shares few assumptions with the common linear or multiple regression tests, but differs fundamentally in the way that it deals with

assumptions related to linearity, independence of errors, and multicollinearity issues. Moreover, the assumption of normality is not required in MLR and the form of the equation differs (Field, 2009) as it predicts the probability of the occurrence of the dependent variable  $[p(y)]$  given known values of the independent variables:

$$P(y) = \frac{1}{1 + e^{-(b_0 + b_1X_{1i} + b_2X_{2i} + \dots + b_nX_{ni})}}$$

Where  $P(y)$ : probability of the occurrence of the dependent variable (y).  
 b: coefficients.  
 X: independent variable.

In MLR the assumption of linearity can be established by examining the predictors' linear relationship with the Log of the outcome variable. Any interaction that is significant indicates that the main effect has violated the assumption of linearity of the Logit. Alternatively, any interaction that is insignificant supports the assumption of linearity (Field, 2009). As for the independence of errors, this assumption can be established in MLR by measuring the dispersion level through comparing the Chi-Square goodness of fit to its degrees of freedom. If this ratio is greater than one, over-dispersion will occur which results in violating the assumption of the independence of errors, but if the ratio is less than one, under-dispersion will occur, which supports the assumption of the independence of errors (Field, 2009).

Another important assumption of MLR is to test for whether the independent variables are closely correlated, i.e., testing for the presence of multicollinearity which renders the individual coefficient estimates to become less reliable as it is not possible to accurately separate out the individual effects of the independent variables (Downing and Clark,



2009). One way to identify multicollinearity is to form a correlation table of all the predictors with the aim of finding out whether there is high correlation between them (Hair et al., 1998; Field, 2009). In addition, two common tests to measure the existence of multicollinearity can be used; these are the Variance Inflation Factor ( $VIF < 10$ ) and the Tolerance Statistic of not less than 0.1 (Hair et al., 1998; Field, 2009). The results of both the linearity and multicollinearity assumptions will be presented.

### **7.3 Assessing Multinomial Logistic Regression (MLR) Assumptions**

As explained in Chapter Five, escalation/de-escalation determinants are classified into two types: project-specific (financial, strategic, informational) and non-project-specific (psychological, contextual, organisational) determinants, where each of the determinants consisting of several related items. Relationship analyses are carried out to examine the direct influence of each of these items as well as exploring which of the determinants has the greatest power in the interpretation of managers' escalation/de-escalation decisions.

Because the dependent variable is dichotomous; i.e., *the decision to escalate commitment (add more resources), or to de-escalate the project (either to terminate or redirect)*, the most appropriate statistical tool to use in this case is Multinomial Logistic Regression (MLR). In order to apply MLR properly, the tests summarised in Table 7.3 need to be applied (see Menard, 1995; Peng et al., 2002; Tabachnick and Fidell, 2007; Field, 2009; Hosmer et al., 2013).

**Table 7.2: MLR Statistical Tests, Tools, and Measurements**

<i>Tests</i>	<i>Tools</i>	<i>Measurements</i>
Model Fitting Criteria	<ul style="list-style-type: none"> <li>• Akaike's Information Criterion (AIC)</li> <li>• Schwarz's Bayesian Information Criterion (BIC)</li> <li>• -2 Log Likelihood</li> </ul>	<ul style="list-style-type: none"> <li>• Low difference between the baseline model and the logistic regression model (LRM) for the values of the AIC and BIC indicate good fit of the model.</li> <li>• -2 log likelihood, the larger the value of the log-likelihood, the more unexplained observations there are.</li> </ul> <p><b>In the current study</b>, this information will be presented in the model fitting information table, as the baseline model is the one that only the constant is included while the logistic regression model is the one with all items that are grouped under each determinant separately are included.</p>
Likelihood Ratio Tests	Chi-Square Distribution	<ul style="list-style-type: none"> <li>• The likelihood ratio test (LL ratio) is based on <math>-2LL</math> ratio, which examines the significance of the difference between the <math>(-2LL)</math> ratio for the (LRM) minus the (LL ratio) for the baseline model. Where at the .05 level or lower means that (LRM) is significantly different from the one with the constant only. The Chi-square distribution is used to assess the significance of this ratio.</li> </ul> <p><b>In the current study</b> the (LL ratio) will be presented in two tables: the model fitting information table for all items within each determinant, and in the Likelihood ratio test table to assess the significant influence of each item separately on the managers' (de)escalation decisions.</p>
Goodness of fit	<ul style="list-style-type: none"> <li>• The Pearson Statistic</li> <li>• The Deviance Statistic</li> </ul>	<p>The Pearson and Deviance statistics test the same thing, which is whether the predicted values from the model differ significantly from the observed values. If these statistics are not significant then the predicted values are not significantly different from the observed values; in other words, the model is a good fit.</p> <p><b>In the current study</b>, these tests will be presented in the model fitting information table to assess the goodness of fit of all items within each determinant.</p>
Pseudo R-Square	<ul style="list-style-type: none"> <li>• Cox and Snell Statistic</li> <li>• Nagelkerke Statistic</li> <li>• McFadden Statistic</li> </ul>	<p>The multiple correlation in logistic regression known as the <i>R</i>-statistic is the partial correlation between the outcome variable and each of the predictor variables and it can vary between <math>-1</math> and <math>1</math>. A positive value indicates, that as the predictor variable increases, so does the likelihood of the event occurring. A negative value implies that as the predictor variable increases, the likelihood of the outcome occurring decreases. If a variable has a small value of <i>R</i> then it contributes only a small amount to the model.</p> <p><b>In the current study</b>, these tests will be presented in the model fitting information table to assess the goodness of fit of all items within each determinant.</p>
Parameter Estimates	<ul style="list-style-type: none"> <li>• Wald Statistic</li> <li>• Chi-Square distribution (<math>\chi^2</math>)</li> <li>• Exp (B) Ratio</li> </ul>	<p>The <i>Wald</i> statistic, which is based on the <i>Chi-Square</i> distribution, shows whether the <i>b</i> coefficient for any predictor is significantly different from zero, if it is significantly different from zero then it is assumed that the predictor makes a significant contribution to the prediction of the outcome (dependent variable). While the value of the odds ratio (<i>Exp (B)</i>) indicates the change in odds resulting from a unit change in the predictor.</p> <p>If the value of (<i>Exp(B)</i>) is greater than 1, then it indicates that as the predictor increases, the odds of the outcome occurring increase. in opposition, a value less than 1 indicates that as the predictor increases, the odds of the outcome occurring decrease.</p> <p><b>In the current study</b>, these tests will be presented in the parameter estimates table, to assess the significant of the influence of each item on either managers' escalation or de-escalation decisions.</p>

### 7.3.1 Verification of MLR Linearity Assumption

The results presented in Table 7.3 show that all six interactions have significant (*Sig.*) values that are  $>.05$ , which implies that the assumption of linearity of the Logit has been met for all six predictors [psychological (d.1), contextual (d.2), organisational (d.3), financial (d.4), strategic (d.5), and informational (d.6)].

**Table 7.3: Results of Linearity Tests\***

<i>Variables</i>	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>
d.1	-.008	3.052	.000	1	.998	.992
d.2	-7.747	9.068	.730	1	.393	.000
d.3	1.221	2.931	.174	1	.677	3.392
d.4	14.294	14.564	.963	1	.326	1613823.757
d.5	-15.883	9.704	2.679	1	.102	.000
d.6	3.434	9.806	.123	1	.726	30.991
<i>Ln(d.1)*d.1</i>	.143	1.282	.012	1	.911	1.154
<i>Ln(d.2)*d.2</i>	3.648	4.177	.762	1	.383	38.383
<i>Ln(d.3)*d.3</i>	-.594	1.396	.181	1	.670	.552
<i>Ln(d.4)*d.4</i>	-6.317	6.629	.908	1	.341	.002
<i>Ln(d.5)*d.5</i>	7.390	4.639	2.538	1	.111	1619.845
<i>Ln(d.6)*d.6</i>	-1.736	4.570	.144	1	.704	.176
Constant	4.252	32.296	.017	1	.895	70.274

\* *Ln*: the log of the independent variable, *B*: beta, *S.E.*: standard error, *Wald*: parametric test, *df*: degree of freedom, *Sig.*: significant, *Exp(B)*: expected beta.

### 7.3.2 Verification of MLR Multicollinearity Assumption

There is no high correlation between any of the independent variables (see Table 7.4); the highest correlation value is .161, which is considered very low. VIF values also do not exceed the conventional level of 10, as the highest score is 1.051, and there are no values of tolerance below the recommended level of 0.1.

Therefore, there is no evidence for the existence of multicollinearity between the independent variables. Since each independent variable consists of a number of items,

additional multicollinearity tests will be carried out below for these constituent items when testing individual hypotheses.

**Table 7.4: Results of Multicollinearity Tests**

<i>Correlations</i>							<i>Collinearity Statistics</i>	
	d.1	d.2	d.3	d.4	d.5	d.6	Tolerance	VIF
d.1	1						.983	1.017
d.2	-.022	1					.981	1.019
d.3	-.016	-.017	1				.997	1.003
d.4	-.038	.008	-.002	1			.972	1.029
d.5	.069	.130	.029	-.161	1		.951	1.051
d.6	.099	-.009	.041	.026	.016	1	.987	1.013

#### **7.4 Testing of the Research Direct Effect Hypotheses**

The results of the MLR tests described in Section 7.3 will be presented, in agreement with survey questionnaires studies that applied MLR tests in social science (i.e., Law, 2010; Mzoughi and M'Sallem, 2013) and as suggested by logistic regression studies (i.e., Menard, 1995; Peng et al., 2002), after multicollinearity results, in a series of three tables below for each of the predictor variables as follows:

- The first table will present the *Model Fitting Information* for all items to establish whether the hypothesized model explains the observed relationships captured by the data collected through the following: a) Model Goodness of Fit, b) Pseudo R-Square, c) Model Fitting Criteria, and d) Likelihood Ratio Test.
- The second table will present the *Likelihood Ratio Test* for each of the items separately to determine which of the items included significantly influences managers' escalation/de-escalation decisions by representing both the Model Fitting Criteria, and the Likelihood Ratio Test.
- The third table will present the *Parameter Estimates* for each of the items separately, by considering the decision to redirect the project as the reference point, to specify

which of those items will significantly contribute to either the decision to escalate/de-escalate the failing project. The estimates are: the partial logistic regression coefficients ( $B$ ), the standard errors of the partial slope coefficients, the *Wald* test, the significance level, and the exponentiated slope coefficient ( $ExpB$ ).

#### 7.4.1 Analysis of Project-Specific Determinants

This section presents the results of the MLR tests for the financial, strategic and informational determinants. For the analysis results to be comprehensible, first the code and value impact of each item of the project-specific determinants are listed in Table 7.5.

**Table 7.5: Code and Value of Project-Specific Determinants**

<i>Determinants</i>	<i>Code</i>	<i>Value</i>
<b>Financial Determinants (d.4)</b>		
The availability of the project estimated revenues	d.4.1	Positive
The availability of the project's costs	d.4.2	Positive
The decision maker realized sunk costs	d.4.3	Negative
The financial information clearly reflected the success and failure of the project	d.4.4	Positive
The availability of a more financially attractive investment opportunity	d.4.5	Positive
The salvage value of the project is ignored	d.4.6	Negative
The withdrawal costs at a later date are much higher	d.4.7	Positive
The extra funds required could not be raised in time to save the project	d.4.8	Negative
The availability of a limit for extending the estimated budget	d.4.9	Positive
The limit for extending the estimated budget was publicly announced	d.4.10	Positive
<b>Strategic Determinants (d.5)</b>		
The efficacy of resources utilization	d.5.1	Positive
The availability of a less strategically attractive investment opportunity	d.5.2	Negative
The low degree of project completion	d.5.3	Negative
The systematic continuous monitoring of managers' actions	d.5.4	Positive
The low frequency of project progress reporting	d.5.5	Negative
The flexibility to restructure the project	d.5.6	Positive
The low level of project risk	d.5.7	Negative
<b>Informational Determinants (d.6)</b>		
The information about the failing project is ambiguous	d.6.1	Negative
The credibility of the information source	d.6.2	Positive
The information is biased	d.6.3	Negative
The information is publicly available	d.6.4	Positive
The timing of the information is helpful for the decision maker	d.6.5	Positive

#### 1. Financial Determinants

Financial determinants consist of ten items (Table 7.5) that are assumed to relate to managers' escalation'/de-escalation decisions as stated in hypothesis *H1*:

*H1: Financial determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

**Table 7.6: Multiple Correlation Results for Financial Determinants**

	d.4.1	d.4.2	d.4.3	d.4.4	d.4.5	d.4.6	d.4.7	d.4.8	d.4.9	d.4.10
d.4.1	1									
d.4.2	.598	1								
d.4.3	-.162	-.109	1							
d.4.4	.019	-.016	-.134	1						
d.4.5	.041	.006	.070	.280	1					
d.4.6	-.070	-.117	.053	-.144	-.146	1				
d.4.7	.071	.046	-.118	.113	.033	-.192	1			
d.4.8	-.029	-.057	-.022	-.099	.010	.028	-.210	1		
d.4.9	-.144	-.019	.033	-.042	.092	-.059	.107	-.260	1	
d.4.10	-.181	-.037	-.003	.074	.086	-.080	.069	-.148	.250	1

The preliminary analysis of the ten financial determinants rules out multicollinearity (see Table 7.6) and indicates a good data fit model (see the Deviance ( $p = .172$ ) and the Pearson ( $p = .081$ ) statistics in Table 7.6. Therefore, the hypothesized model explains the observed relationships captured by the data collected. The model fitting information indicates that collectively financial determinants significantly influence managers' escalation/de-escalation decisions in Saudi companies ( $\chi^2 = 34.304$ ,  $p = .024$ ); therefore, hypothesis *H1* is accepted. As is explained below, this collective impact comes from a subset of, (i.e. not all) the ten financial items.

**Table 7.7: Model Fitting Information for Financial Determinants**

Goodness-of-Fit				Pseudo R-Square		
	Chi-Square $\chi^2$	df	Sig.	Cox and Snell	.118	
Pearson	553.109	508	.081	Nagelkerke	.134	
Deviance	538.014	508	.172	McFadden	.059	
Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square $\chi^2$	df	Sig.
Intercept Only	580.477	587.703	576.477			
Final	586.173	665.662	542.173	34.304	20	.024

The financial determinants that influence managers' escalation/de-escalation decisions are shown in Table 7.8. The first is (d.4.4) "*the financial information clearly reflected the success and failure of the project*" ( $\chi^2 = 10.921$ ,  $p < .05$ ), and the second is (d.4.7) "*the withdrawal costs at a later date are much higher*" ( $\chi^2 = 9.896$ ,  $p < .05$ ). Further, as the output does not explain the extent to which those items influence the decision whether to escalate or de-escalate commitment, the individual parameter estimates will demonstrate such information in Table 7.9.

**Table 7.8: Likelihood Ratio Tests for Financial Determinants**

Effect	<i>Model Fitting Criteria</i>			<i>Likelihood Ratio Tests</i>		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square $\chi^2$	df	Sig.
Intercept	585.369	657.631	545.369	3.196	2	.202
d.4.1	583.557	655.820	543.557	1.384	2	.501
d.4.2	582.298	654.561	542.298	.126	2	.939
d.4.3	582.937	655.200	542.937	.764	2	.682
<b>d.4.4</b>	593.094	665.356	553.094	10.921	2	<b>.004</b>
d.4.5	582.576	654.839	542.576	.403	2	.817
d.4.6	583.035	655.298	543.035	.862	2	.650
<b>d.4.7</b>	592.069	664.331	552.069	9.896	2	<b>.007</b>
d.4.8	584.715	656.978	544.715	2.543	2	.280
d.4.9	582.957	655.220	542.957	.784	2	.676
d.4.10	584.031	656.294	544.031	1.858	2	.395

The chi-square statistic  $\chi^2$  is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

The results of the individual parameter estimates for the financial determinants (see Table 7.9) support the statistical output of the likelihood ratio test as it shows that both items "*the financial information clearly reflected the success and failure of the project*" and "*the withdrawal costs at a later date are much higher*", and influence managers' escalation/de-escalation decisions significantly as follows:

**Table 7.9: Parameter Estimates for Financial Determinants**

<i>Failing Project<sup>a</sup></i>		<i>B</i>	<i>Std. Error</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>95% Confidence Interval for Exp(B)</i>	
								<i>Lower Bound</i>	<i>Upper Bound</i>
More resources added to project	Intercept	-3.539	2.118	2.791	1	.095			
	d.4.1	-.249	.269	.852	1	.356	.780	.460	1.322
	d.4.2	.080	.250	.103	1	.748	1.084	.664	1.770
	d.4.3	.113	.188	.363	1	.547	1.120	.775	1.619
	<b>d.4.4</b>	.547	.190	8.311	1	<b>.004</b>	1.727	1.191	2.505
	d.4.5	-.118	.193	.374	1	.541	.889	.610	1.296
	d.4.6	-.093	.170	.298	1	.585	.912	.654	1.271
	<b>d.4.7</b>	.537	.192	7.796	1	<b>.005</b>	1.711	1.174	2.495
	d.4.8	-.084	.198	.178	1	.673	.920	.624	1.356
	d.4.9	.170	.206	.684	1	.408	1.186	.792	1.775
	d.4.10	-.117	.172	.467	1	.494	.889	.635	1.245
Project terminated	Intercept	-2.349	1.730	1.844	1	.174			
	d.4.1	.026	.236	.012	1	.912	1.026	.646	1.630
	d.4.2	.009	.211	.002	1	.966	1.009	.667	1.526
	d.4.3	-.034	.161	.046	1	.830	.966	.705	1.323
	<b>d.4.4</b>	.379	.146	6.769	1	<b>.009</b>	1.460	1.098	1.942
	d.4.5	-.030	.161	.034	1	.853	.971	.708	1.331
	d.4.6	.047	.138	.117	1	.732	1.049	.799	1.376
	<b>d.4.7</b>	.372	.151	6.027	1	<b>.014</b>	1.450	1.078	1.951
	d.4.8	.167	.158	1.115	1	.291	1.181	.867	1.610
	d.4.9	.029	.164	.032	1	.858	1.030	.747	1.420
	d.4.10	-.193	.142	1.843	1	.175	.825	.624	1.089

a. The reference category is: project redirected.

- The first item, which is “*the financial information clearly reflected the success and failure of the project (d.4.4)*” significantly predicts ( $B = .547$ ,  $Wald = 8.311$ ,  $p = .004$ ) that any one unit increase in this item leads to an ( $Exp(B) = 1.727$ ) increase in the possibility that managers will add more resources than redirect the failing project. It also significantly predicts ( $B = .379$ ,  $Wald = 6.769$ ,  $p = .009$ ) that any one unit increase in this item leads to an ( $Exp(B) = 1.460$ ) increase in the probability that managers will terminate the failing project than redirect it.
- The second item is “*the withdrawal costs at a later date are much higher (d.4.7)*” predicts significantly ( $B = .537$ ,  $Wald = 7.796$ ,  $p = .005$ ) that any one unit increase in this item leads to an ( $Exp(B) = 1.711$ ) increase in the probability that managers will add more resources than redirect the failing project. It also significantly predicts ( $B = .372$ ,  $Wald = 6.027$ ,  $p = .014$ ) that any one unit increase in this item leads to an



( $Exp(B) = 1.450$ ) increase in the probability that managers will terminate the failing project than redirect it.

To conclude, hypothesis *H1* is accepted since the results in this section confirm the collective influence of the financial determinants on the escalation/de-escalation decisions, through the following items:

- *Approach* attributes: “the financial information clearly reflected the success and failure of the project” and “the withdrawal costs at a later date are much higher”.
- *Avoid* attributes: “the financial information clearly reflected the success and failure of the project” and “the withdrawal costs at a later date are much higher”.

The MLR results (approach/avoid attributes) are, to some extent, similar to a number of escalation/de-escalation studies (see Chapters Three and Four) that examined financial determinants, as when managers make escalation/de-escalation decisions they seem to be influenced by the fact that the information provided clearly reflected the success and failure of their capital projects and that withdrawal costs are too significant to be ignored (e.g. Ross and Staw, 1993; Winch, 2013).

## **2. Strategic Determinants**

As shown earlier Table 7.5, strategic determinants consist of ten items that are assumed to relate to managers' escalation/de-escalation decisions as stated in hypothesis *H2*:

*H2: Strategic determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

**Table 7.10: Multiple Correlation Results for Strategic Determinants**

	d.5.1	d.5.2	d.5.3	d.5.4	d.5.5	d.5.6	d.5.7
d.5.1	1						
d.5.2	-.301	1					
d.5.3	-.151	.218	1				
d.5.4	.204	-.143	-.201	1			
d.5.5	.217	-.117	.001	.068	1		
d.5.6	-.274	-.032	-.035	-.155	-.445	1	
d.5.7	.016	.103	.058	.006	-.068	-.150	1

In addition to the absence of multicollinearity (see Table 7.10), the hypothesized model is formed to explain the observed relationships captured by the data collected. Table 7.11 shows that both the Deviance ( $p = .107$ ) and the Pearson ( $p = .253$ ) statistics report that the model presented is a good fit of the data, but this is limited by the Pseudo R-Square results (McFadden .046 rate). Therefore, the model presented is a limited fit of the data in this case.

**Table 7.11: Model Fitting Information for Strategic Determinants**

Goodness-of-Fit				Pseudo R-Square		
	Chi-Square $\chi^2$	df	Sig.	Cox and Snell		
Pearson	453.180	434	.253	Nagelkerke	.105	
Deviance	470.965	434	.107	McFadden	.046	
Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square $\chi^2$	df	Sig.
Intercept Only	536.298	543.525	532.298			
Final	537.653	595.463	505.653	26.645	14	.021

Furthermore, the model fitting information (Table 7.11) shows that collectively strategic determinants significantly influence managers' escalation/de-escalation decisions in Saudi companies ( $\chi^2 = 26.645$ ,  $p = .021$ ). Therefore, hypothesis  $H2$  is confirmed.

As explained below, this collective impact does not come from all seven strategic items (see Table 7.12), as the likelihood ratio test indicates that there is only one item of the

strategic determinants that has a significant influence on managers escalation/de-escalation decisions, which is (d.5.5) “*the low frequency of project progress reporting*” ( $\chi^2 = 9.930, p = .007$ ).

**Table 7.12: Likelihood Ratio Tests for Strategic Determinants**

Effect	<i>Model Fitting Criteria</i>			<i>Likelihood Ratio Tests</i>		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square $\chi^2$	df	Sig.
Intercept	537.684	588.268	509.684	4.031	2	.133
d.5.1	535.326	585.910	507.326	1.673	2	.433
d.5.2	534.093	584.677	506.093	.440	2	.803
d.5.3	534.643	585.227	506.643	.990	2	.610
d.5.4	536.414	586.998	508.414	2.761	2	.251
<b>d.5.5</b>	543.584	594.168	515.584	9.930	2	<b>.007</b>
d.5.6	533.794	584.378	505.794	.141	2	.932
d.5.7	534.821	585.405	506.821	1.168	2	.558
The chi-square $\chi^2$ statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.						

The individual parameter estimates for the strategic determinants (see Table 7.13) indicates that “*the low frequency of project progress reporting (d.5.5)*” significantly influences managers’ decisions, as it predicts ( $B = -.422, Wald = 6.131, p = .013$ ) that any one unit increase in this item leads to a ( $Exp(B) = .982$ ) unit decrease in the probability that managers will add more resources than redirect the failing project. It also significantly predicts ( $B = -.404, Wald = 8.202, p = .004$ ) that any one unit increase in this item leads to the ( $Exp(B) = .668$ ) decrease in the probability that managers will redirect the failing project than terminate it.

**Table 7.13: Parameter Estimates for Strategic Determinants**

<i>Failing project<sup>a</sup></i>		<i>B</i>	<i>Std. Error</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>95% Confidence Interval for Exp(B)</i>	
								<i>Lower Bound</i>	<i>Upper Bound</i>
More resources added to project	Intercept	3.647	1.982	3.387	1	.066			
	d.5.1	-.308	.254	1.474	1	.225	.735	.447	1.208
	d.5.2	-.068	.218	.098	1	.754	.934	.609	1.433
	d.5.3	-.179	.183	.957	1	.328	.836	.585	1.196
	d.5.4	-.323	.201	2.578	1	.108	.724	.488	1.074
	<b>d.5.5</b>	-.422	.171	6.131	1	<b>.013</b>	.656	.469	.916
	d.5.6	.055	.186	.086	1	.770	1.056	.733	1.521
	d.5.7	.007	.169	.002	1	.969	1.007	.723	1.402
Project terminated	Intercept	2.779	1.717	2.620	1	.106			
	d.5.1	-.082	.228	.130	1	.718	.921	.589	1.439
	d.5.2	-.123	.186	.437	1	.508	.884	.614	1.273
	d.5.3	-.061	.150	.163	1	.686	.941	.701	1.263
	d.5.4	-.217	.179	1.480	1	.224	.805	.567	1.142
	<b>d.5.5</b>	-.404	.141	8.202	1	<b>.004</b>	.668	.506	.880
	d.5.6	-.008	.154	.003	1	.957	.992	.734	1.341
	d.5.7	.130	.140	.867	1	.352	1.139	.866	1.498

a. The reference category is: project redirected.

Therefore, hypothesis *H2* is accepted since the results in this section confirm the influence of the strategic determinants on the escalation/de-escalation decisions. This impact is driven by the effect of “*the low frequency of project progress reporting*”, which can be considered, according to the MLR results, as an approach as well as an avoid attribute for managers’ decisions. Regarding approach/avoid attributes, this is reasonably consistent with the results of previous studies (see Chapters Three and Four) where escalation/de-escalation decisions were influenced by the low frequency of progress reporting of the failing project (Keil and Robey, 1999).

### 3. Informational Determinants

Informational determinants consist of five items (Table 7.5) that are assumed to relate to managers' escalation'/de-escalation decisions as stated in hypothesis *H3*:

*H3: Informational determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

**Table 7.14: Multiple Correlation Results for Informational Determinants**

	d.6.1	d.6.2	d.6.3	d.6.4	d.6.5
d.6.1	1				
d.6.2	-.265	1			
d.6.3	-.122	-.065	1		
d.6.4	-.004	-.072	-.400	1	
d.6.5	-.064	.058	.148	.134	1

The preliminary analysis of the five informational determinants rules out any multicollinearity (see Table 7.14). Moreover, the hypothesized model is formed to explain the observed relationships captured by the data collected. Table 7.15 shows that both the Deviance ( $p = .059$ ) and the Pearson ( $p = .139$ ) statistics report that the model presented is a good fit of the data, this result is, however, limited by the Pseudo R-Square results (McFadden .048 rate). Therefore, the model presented explains is a limited fit of the data in this case. Additionally, Table 7.15 shows that collectively informational determinants significantly influence managers' escalation/de-escalation decisions in Saudi companies ( $\chi^2 = 27.649$ ,  $p = .0025$ ). Therefore, hypothesis *H3* is confirmed. As is explained below, this collective impact comes from a subset of, (i.e. not all) the five informational items.

**Table 7.15: Model Fitting Information for Informational Determinants**

Goodness-of-Fit				Pseudo R-Square		
	Chi-Square $\chi^2$	df	Sig.	Cox and Snell		
Pearson	326.649	300	.139	Nagelkerke	.109	
Deviance	339.286	300	.059	McFadden	.048	
Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square $\chi^2$	df	Sig.
Intercept Only	448.832	456.059	444.832			
Final	441.183	484.541	417.183	27.649	10	.002

The informational determinants with the most influence on managers' escalation/de-escalation decisions are shown in Table 7.16. The first item is (d.6.1) "*the information about the failing project is ambiguous*" ( $\chi^2 = 6.531, p = .038$ ), and the second is (d.6.3) "*the information is biased*" ( $\chi^2 = 6.439, p = .040$ ). However, the output does not explain the extent to which those items influence the decision of whether to escalate or de-escalate which the individual parameter estimates will demonstrate.

**Table 7.16: Likelihood Ratio Tests for Informational Determinants**

Effect	<i>Model Fitting Criteria</i>			<i>Likelihood Ratio Tests</i>		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square $\chi^2$	df	Sig.
Intercept	437.626	473.758	417.626	.443	2	.801
<b>d.6.1</b>	443.714	479.846	423.714	6.531	2	<b>.038</b>
d.6.2	439.555	475.686	419.555	2.372	2	.305
<b>d.6.3</b>	443.623	479.754	423.623	6.439	2	<b>.040</b>
d.6.4	439.745	475.877	419.745	2.562	2	.278
d.6.5	439.808	475.939	419.808	2.625	2	.269
The chi-square $\chi^2$ statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.						

The individual parameter estimates for the informational determinants (see Table 7.17) confirms the results of the likelihood ratio test (in Table 7.16) that two items significantly influence managers' escalation de-escalation decisions as follows:

- The first item is "*the information about the failing project is ambiguous (d.6.1)*", which seems to significantly predict ( $B = .518, Wald = 6.162, p = .013$ ) that any one unit increase in this item leads to an ( $Exp(B) = 1.678$ ) increase in the probability that managers will add more resources than redirect the failing project. On the other hand, it does not predict whether managers terminate or redirect the failing project ( $p > .05$ ).
- The second item "*the information is biased (d.6.3)*", which seems to significantly predict ( $B = -.369, Wald = 4.845, p = .028$ ) that any one unit increase in this item leads

to a ( $Exp(B) = .692$ ) decrease in the probability that managers will add more resources than redirect the failing project. It also significantly predicts ( $B = -.283$ ,  $Wald = 4.519$ ,  $p = .034$ ) that any one unit increase in this item leads to a ( $Exp(B) = .753$ ) decrease in the probability that managers will terminate than redirect the failing project.

**Table 7.17: Parameter Estimates for Informational Determinants**

<i>Failing project<sup>a</sup></i>		<i>B</i>	<i>Std. Error</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>95% Confidence Interval for Exp(B)</i>	
								<i>Lower Bound</i>	<i>Upper Bound</i>
More resources added to project	Intercept	-1.011	1.528	.437	1	.508			
	<b>d.6.1</b>	.518	.209	6.162	1	<b>.013</b>	1.678	1.115	2.526
	d.6.2	.299	.210	2.030	1	.154	1.348	.894	2.033
	<b>d.6.3</b>	-.369	.167	4.845	1	<b>.028</b>	.692	.498	.960
	d.6.4	.233	.171	1.863	1	.172	1.262	.903	1.764
	d.6.5	-.320	.208	2.369	1	.124	.726	.484	1.091
Project terminated	Intercept	-.392	1.300	.091	1	.763			
	d.6.1	.179	.188	.898	1	.343	1.196	.826	1.730
	d.6.2	.218	.176	1.531	1	.216	1.243	.881	1.755
	<b>d.6.3</b>	-.283	.133	4.519	1	<b>.034</b>	.753	.580	.978
	d.6.4	.188	.136	1.915	1	.166	1.206	.925	1.574
	d.6.5	-.072	.181	.158	1	.691	.930	.652	1.327

a. The reference category is: project redirected.

To conclude, hypothesis *H3* is confirmed since the results in this section approve the influence of the informational determinants on the escalation/de-escalation decisions; this impact is driven from the effect of two items as follows:

- *Approach* attributes: “the information about the failing project is ambiguous”, and “the information is biased”.
- *Avoid* attributes: “the information is biased”.

The results of this section (approach/avoid attributes) have, to an extent, similarities with a number of (de)-escalation studies that examined the influence of informational determinants (Drummond, 1995; Mähring and Keil, 2008; Chakravorty, 2009).

### 7.4.2 Analysis of Non-Project-Specific Determinants

This section presents the results of the MLR tests for the psychological, contextual and organisational determinants respectively, similar to Section 7.4.1, the code and value impact of each item of the non-project-specific determinants are listed in Table 7.18.

**Table 7.18: Code and Value of Non-Project-Specific Determinants**

<i>Determinants</i>	<i>Code</i>	<i>Value</i>
<b>Psychological Determinants (d.1)</b>		
The desire to justify a previous decision	d.1.1	Negative
Manager was initially responsible for initiating the project	d.1.2	Negative
Manager experience of guilt and regret about the project's failure	d.1.3	Positive
Manager was allowed to bring to mind his high level of self esteem	d.1.4	Positive
Project initiated by a group	d.1.5	Positive
Manager given the opportunity to state his low self-esteem	d.1.6	Positive
Manager experience job insecurity	d.1.7	Negative
Manager desire for self-efficiency	d.1.8	Negative
Manager has less tolerance for failure	d.1.9	Positive
Manager has personal gains	d.1.10	Negative
Manager has already committed to a mental budget	d.1.11	Positive
Manager believes that the project is a failure and cannot be turned around	d.1.12	Positive
<b>Contextual Determinants (d.2)</b>		
Project and its goals were publicly announced	d.2.1	Positive
Project is a key project in the manager's portfolio	d.2.2	Negative
Effort the manager has put in the project is noticeable	d.2.3	Negative
Manager is rewarded for decision process rather than decision outcome	d.2.4	Positive
Manager is saving his reputation	d.2.5	Negative
Manager is socially motivated to discontinue the project	d.2.6	Positive
Manager is politically supported to discontinue the project	d.2.7	Positive
Manager is respected for his previous history of managing projects	d.2.8	Negative
Manager educational background (i.e., <i>management, finance, economics...</i> )	d.2.9	Positive
Manager continuing a failing project would degrade his masculinity	d.2.10	Positive
Manager cultural background (i.e. <i>customs, society ethics and morals...</i> )	d.2.11	Negative
Manager is externally justifying others	d.2.12	Negative
Political interference to discontinue the project	d.2.13	Positive
Existence of norms of modeling	d.2.14	Negative
<b>Organisational Determinants (d.3)</b>		
The organisation de-escalated the project as it was technically irretrievable	d.3.1	Positive
Saving the organisation reputation	d.3.2	Negative
The linkage of project to organisation's strategic existence is significant	d.3.3	Negative
Low investment in other technical side-bets of project (i.e. <i>hiring people.....</i> )	d.3.4	Positive



## 1. Psychological Determinants

Psychological determinants consist of twelve items (Table 7.18) that are assumed to relate to managers' escalation'/de-escalation decisions as stated in hypothesis *H4*:

*H4: Psychological determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

**Table 7.19: Multiple Correlation Results for Psychological Determinants**

	d.1.1	d.1.2	d.1.3	d.1.4	d.1.5	d.1.6	d.1.7	d.1.8	d.1.9	d.1.10	d.1.11	d.1.12
d.1.1	1											
d.1.2	.190	1										
d.1.3	-.228	-.213	1									
d.1.4	-.067	-.101	.123	1								
d.1.5	.057	-.051	-.029	.321	1							
d.1.6	.025	-.076	.094	.073	.244	1						
d.1.7	-.039	-.013	-.139	.012	-.017	-.015	1					
d.1.8	.143	-.008	.031	-.049	-.126	-.105	.043	1				
d.1.9	-.077	-.145	.089	.036	-.066	.165	.012	-.080	1			
d.1.10	.000	-.022	.050	-.070	-.100	-.170	-.035	-.003	-.126	1		
d.1.11	-.015	.033	.099	.059	.068	.045	-.191	.005	.075	.026	1	
d.1.12	-.082	-.103	.268	.109	-.060	.078	-.156	-.002	.168	.025	.172	1

In addition to the absence of multicollinearity (see Table 7.19), the hypothesized model is formed to explain the observed relationships captured by the data collected. The results (Table 7.20) show that both the Deviance ( $p = .196$ ) and the Pearson ( $p = .179$ ) statistics report that the model presented is a good fit of the data, however, this is limited by the Pseudo R-Square results (i.e., McFadden 50% rate). Therefore, the model presented is a limited fit of the data in this case.

The results of the Likelihood Ratio tests (Table 7.20) show that collectively psychological determinants do not influence managers' escalation/de-escalation decisions in Saudi companies ( $\chi^2 = 29.010$ ,  $p > .05$ ). Before rejecting hypothesis *H4* and making the

conclusion that psychological determinants do not have an influence on Saudi managers' escalation/de-escalation decisions; it is worth looking at the results of the Likelihood Ratio test to establish whether there are any specific psychological items that influence Saudi managers' escalation/de-escalation decisions.

**Table 7.20: Model Fitting Information for Psychological Determinants**

Goodness-of-Fit				Pseudo R-Square		
	Chi-Square $\chi^2$	df	Sig.	Cox and Snell	.100	
Pearson	549.475	522	.196	Nagelkerke	.114	
Deviance	551.625	522	.179	McFadden	.050	
Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square $\chi^2$	df	Sig.
Intercept Only	584.635	591.862	580.635			
Final	603.625	697.566	551.625	29.010	24	.220

The results of the Likelihood Ratio test (Table 7.21) show that two of the psychological determinants have a significant influence on managers' escalation/de-escalation decisions. The first (*d.1.1*) is “*the desire to justify a previous decision*” ( $\chi^2 = 8.508, p = .014$ ), and the second item (*d.1.5*) is the “*project is initiated by a group*” ( $\chi^2 = 6.759, p = .034$ ).

Therefore, it can be argued that although the results in Table 7.20 show no significant collective influence of the psychological determinants on the decision to escalate/de-escalate commitment, there are two items that independently seem to have a significant influence on Saudi managers' escalation/de-escalation decisions. However, the statistical output have not explained the extent of this apparent influence on the decision whether to escalate or de-escalate. This aspect is dealt with through the parameter estimates information presented in Table 7.21.

**Table 7.21: Likelihood Ratio Tests for Psychological Determinants**

Effect	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square $\chi^2$	df	Sig.
Intercept	602.246	688.961	554.246	2.621	2	.270
<b>d.1.1</b>	608.133	694.848	560.133	8.508	2	<b>.014</b>
d.1.2	605.410	692.125	557.410	5.785	2	.055
d.1.3	599.835	686.550	551.835	.210	2	.901
d.1.4	603.341	690.056	555.341	3.716	2	.156
<b>d.1.5</b>	606.384	693.099	558.384	6.759	2	<b>.034</b>
d.1.6	602.542	689.257	554.542	2.917	2	.233
d.1.7	600.040	686.755	552.040	.415	2	.813
d.1.8	599.895	686.610	551.895	.270	2	.874
d.1.9	600.182	686.897	552.182	.557	2	.757
d.1.10	600.422	687.137	552.422	.797	2	.671
d.1.11	600.815	687.530	552.815	1.190	2	.552
d.1.12	599.668	686.383	551.668	.043	2	.979
The chi-square $\chi^2$ statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.						

The individual parameter estimates for the psychological determinants are shown in Table 7.22. Three items are found to have a significant influence managers' (de)escalation decision as follows:

- The first item is “*the desire to justify a previous decision (d.1.1)*”. This seems to significantly predict ( $B = .623$ ,  $Wald = 7.343$ ,  $p = .007$ ) in that any one unit increase in this item leads to an ( $Exp(B) = 1.864$ ) increase in the probability that managers will add more resources than redirect the failing project. It also significantly predicts ( $B = .452$ ,  $Wald = 4.659$ ,  $p = .031$ ) that any one unit increase in this item leads to an ( $Exp(B) = 1.572$ ) increase in the probability that managers will terminate than redirect the failing project.
- The second item is “*manager is initially responsible for initiating the project (d.1.2)*”. This seems to significantly predict ( $B = -.358$ ,  $Wald = 4.954$ ,  $p = .026$ ) that any one unit increase in this item leads to a ( $Exp(B) = .699$ ) decrease in the probability that managers will terminate the failing project than redirect it. On the other hand, it does not predict that managers would add more resources to the failing project ( $p > .05$ ).

**Table 7.22: Parameter Estimates for Psychological Determinants**

<i>Failing project<sup>a</sup></i>		<i>B</i>	<i>Std. Error</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>95% Confidence Interval for Exp(B)</i>	
								<i>Lower Bound</i>	<i>Upper Bound</i>
More resources added to project	Intercept	-2.283	1.550	2.171	1	.141			
	<b>d.1.1</b>	.623	.230	7.343	1	<b>.007</b>	1.864	1.188	2.924
	d.1.2	-.353	.185	3.637	1	.057	.702	.489	1.010
	d.1.3	.006	.156	.002	1	.968	1.006	.741	1.367
	d.1.4	-.121	.157	.592	1	.442	.886	.652	1.205
	<b>d.1.5</b>	.446	.179	6.220	1	<b>.013</b>	1.562	1.100	2.217
	d.1.6	-.227	.150	2.273	1	.132	.797	.594	1.070
	d.1.7	.028	.149	.035	1	.851	1.028	.768	1.377
	d.1.8	.029	.148	.038	1	.845	1.029	.770	1.375
	d.1.9	.100	.151	.442	1	.506	1.105	.823	1.485
	d.1.10	.106	.145	.528	1	.467	1.111	.836	1.478
	d.1.11	.068	.150	.209	1	.648	1.071	.798	1.436
	d.1.12	.007	.174	.002	1	.967	1.007	.716	1.417
Project terminated	Intercept	-.374	1.324	.080	1	.778			
	<b>d.1.1</b>	.452	.210	4.659	1	<b>.031</b>	1.572	1.042	2.370
	<b>d.1.2</b>	-.358	.161	4.954	1	<b>.026</b>	.699	.510	.958
	d.1.3	-.048	.132	.130	1	.718	.954	.736	1.235
	d.1.4	-.249	.133	3.517	1	.061	.780	.601	1.011
	d.1.5	.236	.142	2.757	1	.097	1.267	.958	1.674
	d.1.6	-.022	.132	.028	1	.867	.978	.755	1.267
	d.1.7	-.054	.129	.176	1	.675	.947	.735	1.220
	d.1.8	.065	.127	.259	1	.611	1.067	.832	1.368
	d.1.9	.084	.130	.415	1	.520	1.087	.843	1.402
	d.1.10	-.003	.127	.001	1	.978	.997	.777	1.279
	d.1.11	.139	.128	1.174	1	.279	1.149	.894	1.477
	d.1.12	.029	.151	.037	1	.848	1.029	.766	1.383

a. The reference category is: project redirected.

- The third item is “*project is initiated by a group (d.1.5)*”. This seems to significantly predict ( $B = .446$ ,  $Wald = 6.220$ ,  $p = .031$ ) that any one unit increase in this item leads to an ( $Exp(B)=1.562$ ) increase in the probability that managers will add more resources than redirect the failing project. On the other hand, it does not predict whether managers terminate or redirect the failing project ( $p > .05$ ).

Therefore, the results of the current study do not support the influence of the psychological determinants collectively on managers’ escalation/de-escalation decisions (hypothesis  $H4$ ), however, within further analysis, the residual impact of three key psychological determinants was noticed as follows:

- Approach attributes: “*the desire to justify a previous decision*”, “*manager is initially responsible for initiating the project*”, and “*project initiated by a group*”.
- Avoid attributes: “*the desire to justify a previous decision*” and “*manager is initially responsible for initiating the project*”.

The results of the MLR test are conditionally consistent with the outcomes of existing literature, as stated formerly in Chapters Three and Four, where (regarding approach/avoid attributes) there was empirical evidence for the strong effect of self-justification, personal responsibility, and group decision making (Staw and Ross, 1986; Drummond, 1994; Pan et al., 2009) on managers’ escalation/de-escalation decisions.

## 2. Contextual Determinants

Contextual determinants consist of fourteen items (Table 7.18) that are assumed to relate to managers' escalation'/de-escalation decisions as stated in hypothesis *H5*:

*H5: Contextual determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

**Table 7.23: Multiple Correlation Results for Contextual Determinants**

	d.2.1	d.2.2	d.2.3	d.2.4	d.2.5	d.2.6	d.2.7	d.2.8	d.2.9	d.2.10	d.2.11	d.2.12	d.2.13	d.2.14
d.2.1	1													
d.2.2	-.454	1												
d.2.3	-.130	.235	1											
d.2.4	.183	-.113	-.134	1										
d.2.5	-.072	.114	.084	-.293	1									
d.2.6	.112	-.144	-.083	.134	-.285	1								
d.2.7	.102	-.160	-.143	.076	-.093	.294	1							
d.2.8	-.221	.098	.111	-.204	.047	-.147	-.284	1						
d.2.9	.148	.033	-.166	.040	-.071	.101	.084	-.208	1					
d.2.10	-.018	.057	-.182	.137	-.121	.062	.112	-.089	.308	1				
d.2.11	-.071	.087	.122	-.053	.156	-.079	-.187	.051	-.109	-.166	1			
d.2.12	-.053	.039	.100	-.058	.079	-.109	-.025	.044	-.059	-.048	.175	1		
d.2.13	.141	-.015	-.018	-.061	-.085	.042	.039	-.125	.239	.140	-.146	-.053	1	
d.2.14	.009	.003	.068	-.062	.078	-.043	-.058	.025	-.021	-.060	.039	.011	-.103	1

The preliminary analysis of the fourteen contextual determinants rules out multicollinearity (see Table 7.23) and indicates a good data fit model as indicated by the Deviance ( $p = .311$ ) and the Pearson ( $p = .192$ ) statistics in Table 7.24. Therefore, the hypothesized model explains the observed relationships captured by the data collected. The model fitting information (Table 7.24) indicate that collectively contextual determinants significantly influence managers' escalation/de-escalation decisions in Saudi companies ( $\chi^2 = 47.255$ ,  $p = .013$ ), therefore, hypothesis  $h5$  is accepted. As explained below, this collective impact comes from a subset of determinants, not all fourteen items.

**Table 7.24: Model Fitting Information for Contextual Determinants**

Goodness-of-Fit				Pseudo R-Square		
	Chi-Square $\chi^2$	df	Sig.	Cox and Snell		
Pearson	545.801	518	.192	Nagelkerke	.180	
Deviance	533.381	518	.311	McFadden	.081	
Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square $\chi^2$	df	Sig.
Intercept Only	584.635	591.862	580.635			
Final	593.381	701.774	533.381	47.255	28	.013

The contextual determinants with the most influence on managers' escalation/de-escalation decisions are shown in Table 7.25. The first ( $d.2.2$ ) is that the “*project is a key project in the manager's portfolio*” ( $\chi^2 = 8.737$ ,  $p = .013$ ). The second item ( $d.2.4$ ) is that the “*manager is rewarded for decision process rather than decision outcome*” ( $\chi^2 = 13.646$ ,  $p = .001$ ). The third item ( $d.2.9$ ) is the “*manager's educational background*” ( $\chi^2 = 6.038$ ,  $p = .049$ ), and the fourth item ( $d.2.14$ ) is the *existence of norms of modelling* ( $\chi^2 = 6.478$ ,  $p = .039$ ). However, Table 7.26 will further explain the power of those significantly influencing items on the decision to escalate or de-escalate.

**Table 7.25: Likelihood Ratio Tests for Contextual Determinants**

Effect	<i>Model Fitting Criteria</i>			<i>Likelihood Ratio Tests</i>		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square $\chi^2$	df	Sig.
Intercept	592.829	693.997	536.829	3.449	2	.178
d.2.1	594.879	696.047	538.879	5.499	2	.064
<b>d.2.2</b>	598.118	699.285	542.118	8.737	2	<b>.013</b>
d.2.3	591.222	692.390	535.222	1.842	2	.398
<b>d.2.4</b>	603.027	704.194	547.027	13.646	2	<b>.001</b>
d.2.5	590.086	691.253	534.086	.705	2	.703
d.2.6	591.829	692.997	535.829	2.449	2	.294
d.2.7	590.846	692.014	534.846	1.466	2	.481
d.2.8	593.617	694.785	537.617	4.237	2	.120
<b>d.2.9</b>	595.418	696.586	539.418	6.038	2	<b>.049</b>
d.2.10	590.593	691.761	534.593	1.213	2	.545
d.2.11	589.794	690.962	533.794	.414	2	.813
d.2.12	589.590	690.758	533.590	.210	2	.901
d.2.13	592.516	693.683	536.516	3.135	2	.209
<b>d.2.14</b>	595.858	697.026	539.858	6.478	2	<b>.039</b>
The chi-square $\chi^2$ statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.						

Although the results of the likelihood ratio test shows the significant impact of only four contextual items, further analysis (parameter estimates in Table 7.26) shows the significant influence of five items on managers' escalation/de-escalation decision as follows:

- The first item is “*project and its goals are publicly announced (d.2.1)*”. This seems to significantly predict ( $B = -.537$ ,  $Wald = 5.123$ ,  $p = .024$ ) in that any one unit increase in this item leads to a ( $Exp(B) = .584$ ) decrease in the probability that managers will add more resources than redirect the failing project. On the other hand, it does not predict whether managers terminate or redirect the failing project ( $p > .05$ ).
- The second item is “*project is a key project in manager's portfolio (d.2.2)*”. This seems to significantly predict ( $B = -.601$ ,  $Wald = 8.005$ ,  $p = .005$ ) in that any one unit increase in this item leads to a ( $Exp(B) = .548$ ) decrease in the probability that

managers will add more resources than redirect the failing project. On the other hand, it does not predict whether managers terminate or redirect the failing project, ( $p > .05$ ).

**Table 7.26: Parameter Estimates for Contextual Determinants**

<i>Failing project<sup>a</sup></i>		<i>B</i>	<i>Std. Error</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>95% Confidence Interval for Exp(B)</i>	
								<i>Lower Bound</i>	<i>Upper Bound</i>
More resources added to project	Intercept	3.548	2.084	2.898	1	.089			
	<b>d.2.1</b>	-.537	.237	5.123	1	<b>.024</b>	.584	.367	.931
	<b>d.2.2</b>	-.601	.212	8.005	1	<b>.005</b>	.548	.362	.831
	d.2.3	-.038	.158	.059	1	.808	.962	.705	1.313
	<b>d.2.4</b>	-.481	.163	8.743	1	<b>.003</b>	.618	.450	.850
	d.2.5	-.084	.155	.294	1	.588	.919	.678	1.246
	d.2.6	-.061	.164	.141	1	.707	.940	.682	1.296
	d.2.7	-.047	.160	.088	1	.767	.954	.697	1.305
	d.2.8	.004	.178	.000	1	.983	1.004	.708	1.423
	d.2.9	.135	.169	.645	1	.422	1.145	.823	1.593
	d.2.10	.092	.159	.334	1	.563	1.096	.802	1.499
	d.2.11	-.028	.163	.030	1	.864	.972	.707	1.338
	d.2.12	.063	.157	.161	1	.688	1.065	.783	1.449
	d.2.13	.255	.188	1.828	1	.176	1.290	.892	1.867
	d.2.14	.006	.181	.001	1	.974	1.006	.706	1.433
Project terminated	Intercept	.778	1.793	.188	1	.664			
	d.2.1	-.295	.208	2.008	1	.156	.745	.495	1.120
	d.2.2	-.266	.164	2.634	1	.105	.767	.556	1.057
	d.2.3	-.174	.138	1.585	1	.208	.840	.641	1.102
	d.2.4	.023	.143	.026	1	.872	1.023	.774	1.353
	d.2.5	-.108	.131	.682	1	.409	.898	.695	1.160
	d.2.6	-.205	.139	2.186	1	.139	.815	.621	1.069
	d.2.7	.113	.131	.741	1	.389	1.120	.865	1.449
	d.2.8	.249	.144	3.013	1	.083	1.283	.968	1.700
	<b>d.2.9</b>	.341	.143	5.695	1	<b>.017</b>	1.407	1.063	1.862
	d.2.10	-.066	.134	.243	1	.622	.936	.719	1.218
	d.2.11	.060	.133	.201	1	.654	1.062	.817	1.379
	d.2.12	.003	.137	.000	1	.984	1.003	.767	1.311
	d.2.13	-.042	.144	.083	1	.773	.959	.723	1.273
	<b>d.2.14</b>	.320	.149	4.599	1	<b>.032</b>	1.377	1.028	1.845

a. The reference category is: project redirected.

- The third item is “*manager is rewarded for decision process rather than decision outcome (d.2.4)*”. As it significantly predicts ( $B = -.481$ ,  $Wald = 8.743$ ,  $p = .003$ ) that any one unit increase in this item leads to a ( $Exp(B) = .604$ ) decrease in the probability that managers will add more resources to the failing project than terminate it. The item does not, however, predict whether managers redirect or terminate the failing project ( $p > .05$ ).



- The fourth item “*managers’ educational background (d.2.9)*”, significantly predicts ( $B = .341$ ,  $Wald = 5.695$ ,  $p = .017$ ) that any one unit increase in this item leads to an ( $Exp(B)=1.407$ ) increase in the probability that managers will terminate than redirect the failing project. However, it does not predict whether managers add more resources or redirect the failing project ( $p>.05$ ).
- The fifth item is the “*existence of norms of modelling (d.2.14)*”, which significantly predicts ( $B = .320$ ,  $Wald = 4.599$ ,  $p = .032$ ) that any one unit increase in this item leads to an ( $Exp(B) = 1.377$ ) increase in the probability that managers will terminate the failing project than redirect it. However, it does not predict whether managers add more resources or redirect the failing project ( $p>.05$ ).

Therefore, the results of the current study confirm the influence of the contextual determinants collectively on managers’ escalation/de-escalation decisions (hypothesis *H5*). This influence determined, within further analysis, through the residual impact of five contextual determinants was noticed as follows:

- Approach attributes: “*project and its goals are publicly announced*”, “*project is a key project in the manager's portfolio*”, and “*manager is rewarded for decision process rather than decision outcome*”.
- Avoid attributes: “*manager's educational background*”, and, “*the existence of norms of modelling*”.

The results of the MLR test are, to an extent, consistent with the outcomes of existing literature, as stated formerly in Chapters Three and Four, regarding approach/avoid attributes, such as the studies by Ross and Staw (1993) and Drummond (1994).

### 3. Organisational Determinants

Organisational determinants consist of four items (see Table 7.17) that are assumed to relate to managers' escalation/de-escalation decision as stated by hypothesis *H6*:

*H6: Organisational determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.*

**Table 7.27: Multiple Correlation Results for Organisational Determinants**

	d.3.1	d.3.2	d.3.3	d.3.4
d.3.1	1			
d.3.2	-.184	1		
d.3.3	.135	-.017	1	
d.3.4	-.158	.203	-.243	1

In addition to the absence of multicollinearity (see Table 7.27), the hypothesized model explains the observed relationships captured by the collected data. Both the Deviance ( $p = .119$ ) and the Pearson ( $p = .408$ ) statistics report that the model presented is a good fit of the data (Table 7.28). These results are limited by the Pseudo R-Square results (McFadden .028 rate) therefore, the model presented explains is a good but limited fit of the data.

**Table 7.28: Model Fitting Information for Organisational Determinants**

Goodness-of-Fit				Pseudo R-Square		
	Chi-Square $\chi^2$	df	Sig.	Cox and Snell		
Pearson	195.921	192	.408	Nagelkerke	.066	
Deviance	215.351	192	.119	McFadden	.028	
Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square $\chi^2$	df	Sig.
Intercept Only	348.179	355.405	344.179			
Final	347.860	383.991	327.860	16.319	8	.038

Table 7.28 shows that collectively organisational determinants significantly influence managers' escalation/de-escalation decisions in Saudi companies ( $\chi^2 = 16.319$ ,  $p = .038$ ). Therefore, hypothesis *H6* is accepted and organisational determinants influence Saudi managers' escalation/de-escalation decisions. Further analysis (the likelihood ratio test)

will indicate which of the organisational items significantly influence Saudi managers' escalation/de-escalation decisions.

The results of the Likelihood ratio test (Table 7.29) show that this collective influence is led by (d.3.3) “*the linkage of project to organisation’s strategic existence is significant*” ( $\chi^2 = 6.314$ ,  $p = .043$ ). The statistical output does not explain the extent of this apparent impact on the decision to escalate or de-escalate. This aspect is dealt with through the individual parameter estimates information presented in Table 7.30.

**Table 7.29: Likelihood Ratio Tests for Organisational Determinants**

Effect	<i>Model Fitting Criteria</i>			<i>Likelihood Ratio Tests</i>		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square $\chi^2$	df	Sig.
Intercept	346.748	375.653	330.748	2.888	2	.236
d.3.1	344.841	373.746	328.841	.981	2	.612
d.3.2	343.946	372.851	327.946	.086	2	.958
<b>d.3.3</b>	350.173	379.078	334.173	6.314	2	<b>.043</b>
d.3.4	348.681	377.586	332.681	4.822	2	.090
The chi-square $\chi^2$ statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.						

The individual parameter estimates for the organisational determinants (Table 7.30), supporting results of likelihood ratio test, show that “*the linkage of project to organisation’s strategic existence is significant (d.3.3)*”, significantly predicts ( $B = -.450$ ,  $Wald = 6.006$ ,  $p = .014$ ) that any one unit increase in this item leads to a ( $Exp(B) = .638$ ) decrease in the probability that managers will add more resources than redirect the failing project. However, this item does not predict whether managers terminate or redirect the failing project ( $p > .05$ ).

**Table 7.30: Parameter Estimates for Organisational Determinants**

<i>Failing project<sup>a</sup></i>		<i>B</i>	<i>Std. Error</i>	<i>Wald</i>	<i>df</i>	<i>Sig.</i>	<i>Exp(B)</i>	<i>95% Confidence Interval for Exp(B)</i>	
								<i>Lower Bound</i>	<i>Upper Bound</i>
More resources added to project	Intercept	.049	1.198	.002	1	.967			
	d.3.1	-.127	.195	.429	1	.513	.880	.601	1.289
	d.3.2	.016	.186	.008	1	.930	1.016	.706	1.464
	<b>d.3.3</b>	-.450	.183	6.006	1	<b>.014</b>	.638	.445	.914
	d.3.4	.351	.183	3.702	1	.054	1.421	.993	2.033
Project terminated	Intercept	1.449	1.013	2.048	1	.152			
	d.3.1	-.162	.166	.946	1	.331	.851	.614	1.178
	d.3.2	.045	.159	.079	1	.779	1.046	.766	1.427
	d.3.3	-.218	.147	2.187	1	.139	.804	.602	1.073
	d.3.4	.019	.146	.017	1	.896	1.019	.766	1.356
a. The reference category is: project redirected.									

The results presented in this section indicate the influence of the organisational determinants on the escalation/de-escalation decisions, which supports hypothesis *H6*. This influence is in terms of “*the linkage of project to organisation’s strategic existence is significant*” on managers’ escalation decisions. To some extent, these results are comparable with those of studies that looked at organisational determinants of escalation decisions (e.g. Ross and Staw, 1993; Kisfalvi, 2000).

### 7.5 The Intervening Role of Operational Project Audit

Project audit, (as already explained in Chapter Six), is an important factor that all 274 participating companies considered as a key element of their capital investment decisions. In this section the aim is to examine whether applying operational project audit will moderate the influence of escalation/de-escalation determinants on managers’ decisions, which will be tested through the following hypothesis:

*H7: Operational audit plays a moderating role with respect to the determinants involved in the escalation/de-escalation decisions.*

In order to examine this hypothesis, first the MLR test for the mean of the escalation/de-escalation determinants will be performed followed by running the MODPROBE Macro test as the following section will show below.

### 7.5.1 Results of MLR Test for Escalation/De-Escalation Determinants

All six independent variables, as mentioned earlier in Section 7.2 of this chapter, have met the assumption of linearity of the Logit (see Table 7.1). Additionally no multicollinearity was found between any of the independent variables (see Table 7.2), and that the first level of analysis has been completed. Therefore, the next step will be to determine the significant influence of any of the independent variables on the escalation/de-escalation of commitment decisions (by testing the likelihood ratio for the mean of the independent variables) in order to test for the moderator effect (Hayes and Mathes, 2009). The results of the likelihood ratio test (see Table 7.31) suggest the existence of a significant influence of each of the variables (Integer/Mean of each of the determinants) on managers' choices ( $p < .05$ ). Thus, the next step will be testing for the moderation effect.

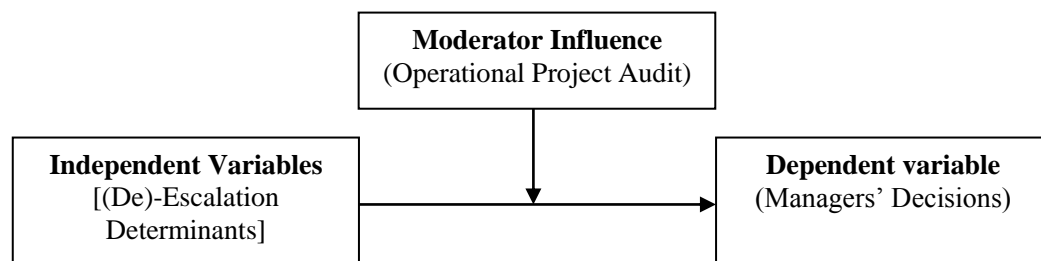
**Table 7.31: Likelihood Ratio Tests for (De)-Escalation Determinants\***

<i>Effect</i>	<i>Model Fitting Criteria</i>			<i>Likelihood Ratio Tests</i>		
	<i>AIC of Reduced Model</i>	<i>BIC of Reduced Model</i>	<i>-2 Log Likelihood of Reduced Model</i>	<i>Chi-Square <math>\chi^2</math></i>	<i>df</i>	<i>Sig.</i>
Intercept	698.203	1485.865	262.203	.000	0	
d.1	673.911	1266.464	345.911	83.707	54	.006
d.2	706.842	1313.847	370.842	108.638	50	.000
d.3	697.939	1406.112	305.939	43.736	22	.004
d.4	695.710	1346.073	335.710	73.507	38	.000
d.5	690.458	1376.952	310.458	48.254	28	.010
d.6	696.956	1412.355	300.956	38.753	20	.007

\*psychological (d.1), contextual (d.2), organisational (d.3), financial (d.4), strategic (d.5), informational (d.6)

### 7.5.2 Moderating the Results of Escalation/De-Escalation Determinants

The moderation (see figure 7.1) is a special case of an interaction. Any moderation is definitely an interaction effect. However, an interaction effect is not necessarily moderation (Wu and Zumbo, 2008). The moderation effect suggests the range that the independent variable most strongly (or weakly) causes the dependent variable, whereas the moderator modifies the strength or direction of a causal relationship (Frazier et al., 2004; Wu and Zumbo, 2008).



**Figure 7.1: The Moderation Effect of Project Audit on Managers' Decisions**

Mathematically, in agreement with the nature of the statistical data presented in this research, the Johnson-Newman technique (J-N) is applied in order to specify the points that provide information about the range of values of the moderator (i.e., strong or weak) where the focal predictor has a statistically significant effect on the dependent variable and where it does not (Hayes and Mathes, 2009). The statistical technique used is the MODPROBE Macro, which was developed by Hayes and Mathes (2009) and will be applied in SPSS version 19.

In order to prepare the data for the analysis, first: both the independent variables and the moderator were transformed to their centred mean, and second: the centered moderator

was multiplied by independent variables in order to create the interaction effect in the regression model (Dawson, 2014). It is worth stating that each of the six independent variables was interacted (separately and collectively) with each level of the moderating variables (see Table 7.1). In the current study, the interaction of variables and the application of the J-N technique have resulted in two types of outcomes. These outcomes are reported as suggested by Hayes and Matthes (2009), who are leading authority in the moderation/logistic regression field, in two tables: the first indicates the significant interaction effect (Table 7.32) and the second shows the significant levels of moderation (Table 7.33). Both will be explained below.

**Table 7.32: The Interaction Results**

<i>Predictor: (De)Escalation Determinants x Moderator: Use of Project Audit</i>				
	<i>b</i>	<i>se</i>	<i>t</i>	<i>P</i>
Constant	.4799	1.1724	.4094	.6826
Predictor	.4264	.3219	1.3248	.1864
Moderator	.6076	.3085	1.9695	.0499
Interaction	-.1669	.0848	-1.9672	.0502
<i>Predictor: Psychological Determinants x Moderator: All Project Audit Items</i>				
	<i>b</i>	<i>se</i>	<i>t</i>	<i>P</i>
Constant	5.3659	1.5010	3.5748	.0004
Predictor	-1.0613	.4719	-2.2491	.0253
Moderator	-.8340	.3977	-2.0974	.0369
Interaction	.2680	.1255	2.1351	.0337
<i>Predictor: Psychological Determinants x Moderator: Project Audit in Evaluation Stage</i>				
	<i>b</i>	<i>se</i>	<i>t</i>	<i>P</i>
Constant	2.4271	.2920	8.3114	.0000
Predictor	-1.1671	.3785	-3.0934	.0023
Moderator	-.1173	.0773	-1.5176	.1303
Interaction	.3249	.0976	3.3307	.0010
<i>Predictor: Contextual Determinants x Moderator: Assessment of audit reports</i>				
	<i>b</i>	<i>se</i>	<i>t</i>	<i>P</i>
Constant	-2.0166	1.8936	-1.0650	.2878
Predictor	3.8267	1.6734	2.2867	.0230
Moderator	1.0689	.4782	2.2352	.0262
Interaction	-1.0024	.4223	-2.3735	.0183

The results presented above in Table 7.32 show the interaction effect of the “*use of project audit*”, “*project audit in the evaluation stage*”, “*all project audit items*”, and “*assessment of project audit reports*” on the influence of (de)-escalation, contextual and psychological determinants on managers’ choices. Therefore, hypothesis *H7* is confirmed for the moderator influence of operational project audit on the influence of escalation/de-escalation determinants on managers’ decisions. For example, “*project audit in the evaluation stage*” significantly moderates the influence of psychological determinants on managers’ (de)escalation of commitment decisions ( $p = .0010$ ).

The data presented in Table 7.33 show the value of moderation levels of project operational audit on the influence of financial, strategic, psychological and (de)escalation determinants on managers’ decisions.

For example, the “*use of project audit*” as a moderator led to significant improvement in how strategic determinants influence managers’ (de)escalation of commitment decisions ( $p = .0438$ ). When the moderator level is (2.7451, 3.6838), the influence of strategic determinants increases positively and significantly ( $p = .0061$ ,  $p = .0164$ ) by ( $b = .5155$ ,  $b = .3514$ ) points respectively. On the other hand, when the level of the moderator “*use of project audit*” is (2.7451) the influence of psychological determinants decreases significantly ( $p = .0510$ ) by ( $b = -.3257$ ) points.



**Table 7.33: Values of Moderation Levels**

<i>Predictor variable</i>	<i>Moderator</i>	<i>Moderation Level</i>	<i>B</i>	<i>se</i>	<i>t</i>	<i>P</i>	<i>LLCI(b)</i>	<i>ULCI (b)</i>
(De)-escalation determinants	Project audit steps	3.8994	-.1697	.0862	-1.9684	.0501	-.3394	.0000
		4.2808	-.3148	.1233	-2.5536	.0112	-.5575	-.0721
	Project audit in evaluation stage	3.8943	-.1738	.0874	-1.9873	.0479	-.3459	-.0016
		4.3818	-.3328	.1228	-2.7094	.0072	-.5747	-.0910
	Manager respond to audit reports	4.0551	-.1787	.0875	-2.0419	.0421	-.3511	-.0064
		4.9060	-.2729	.1208	-2.2589	.0247	-.5108	-.0350
	Assessment of audit reports	3.9853	-.1760	.0879	-2.0026	.0462	-.3489	-.0030
	Quality of audit process	3.8529	-.1819	.0874	-2.0800	.0385	-.3541	-.0097
	The use of project audit	3.6838	-.1884	.0871	-2.1619	.0315	-.3600	-.0168
		4.6226	-.3451	.1198	-2.8793	.0043	-.5810	-.1091
	All project audit items	4.1231	-.3287	.1293	-2.5414	.0116	-.5833	-.0741
Strategic determinants	Project audit in evaluation stage	3.4068	.4045	.1780	2.2730	.0238	.0541	.7548
		3.8943	.3582	.1491	2.4030	.0169	.0647	.6517
	Manager respond to audit reports	4.0551	.3860	.1443	2.5500	.0113	.0839	.6521
		4.9060	.6093	.2011	3.0293	.0072	.2133	1.0052
	Assessment of audit reports	3.0682	.5786	.1915	3.0214	.0028	.2016	.9557
		3.9853	.3475	.1442	2.4093	.0167	.0635	.6314
	Quality of audit process	3.8529	.3602	.1487	2.4219	.0161	.0674	.6530
	The use of project audit	2.7451	.5155	.1867	2.7617	.0061	.1480	.8830
		3.6838	.3514	.1455	2.4145	.0164	.0649	.6379
	All project audit items	3.3206	.4563	.1760	2.5927	.0100	.1098	.8027
		3.7219	.3284	.1485	2.2117	.0278	.0361	.6207
	Project audit steps	3.5180	.4525	.1716	2.6367	.0089	.1146	.7904
		3.8994	.2945	.1500	1.9627	.0507	-.0009	.5898
Financial determinants	Manager respond to audit reports	3.2043	-.4037	.1918	-2.1046	.0363	-.7814	-.0260
	Project audit in evaluation stage	2.9235	-.3297	.1563	-2.1097	.0358	-.6374	-.0220
		3.8529	-.2274	.1131	-2.0118	.0452	-.4500	-.0049
Psychological determinants	The use of project audit	2.7451	-.3257	.1662	-1.9600	.0510	-.6528	.0015
	All project audit items	4.1231	.3081	.1400	2.2001	.0286	.0324	.5838
	Project audit in evaluation stage	4.7824	.3870	.1378	2.8074	.0054	.1156	.6583

Linking back to the escalation/de-escalation literature, where the moderation effect was measured through laboratory settings, the current results are consistent with several studies in the escalation/de-escalation field (see for example, Rutledge, 1995; He and Mittal, 2007) only within the moderation concept, yet, the influence of operational project audit as a moderator, the detailed moderation process, and the levels of moderation were never examined or declared before in the escalation/de-escalation literature to the knowledge of the researcher (see Chapter Four).

## 7.6 Summary of the Hypotheses Tests Results

The outcome of the hypotheses tests show that (see Table 7.34), within the direct effect, five project-specific/non-specific determinants (financial, strategic, informational, contextual, and organisational) have a significant collective effect on managers' escalation/de-escalation decisions, while psychological determinants do not collectively influence managers' choices, however, three psychological items significantly influence managers' decisions.

**Table 7.34: Summary of Results of Hypothesis Testing**

Variables	H*	Significant Items	Escalation decisions	De-escalation decisions
Project-Specific Determinants				
Financial	H1	Financial information clearly reflected success and failure of project (d.4.4)	√	√
		The withdrawal costs at a later date are much higher (d.4.7)	√	√
Strategic	H2	Low frequency of progress reporting (d.5.5)	√	√
Informational	H3	Ambiguous information (d.6.1)	√	
		Biased information (d.6.3)	√	√
Non-Project-Specific Determinants				
Psychological	H4	Desire to justify previous decision (d.1.1)	√	√
		Manager initial responsibility (d.1.2)		√
		Project initiated by a group (d.1.5)	√	
Contextual	H5	Project and its goals publicly announced (d.2.1)	√	
		Project is key project in manager's portfolio (d.2.2)	√	
		Manager rewarded for decision process rather than outcome (d.2.4)	√	
		Manager's educational background (d.2.9)		√
		Existence of norms of modelling (d.2.14)		√
Organizational	H6	Significant linkage of project to organization's strategic existence (d.3.3)	√	
Project audit	H7			

\* Accepted research hypothesis except for the collective psychological determinants

With regard to the indirect relationship, the results show that project operational audit moderates the influence of project-specific/non-specific determinants on managers' escalation decisions. The moderation influence was noticed in the interaction effect of four

levels of project operational audit: 1) the “*use of project audit*”, b) “*project audit in the evaluation stage*”, c) “*all project audit items*”, and “*assessment of audit reports*” on the overall (de)-escalation, psychological, and contextual determinants. The interaction influence was particularised in the value of moderation levels of project operational audit on the influence of financial, strategic, psychological and (de)escalation determinants.

## **7.7 Conclusion**

In this chapter, the aim was to investigate the significance influence of project-specific and non-project-specific determinants on managers’ escalation/de-escalation decisions. This was achieved for both the direct and indirect relationships. A number of conclusions can be drawn from the results attained above.

First, the outcomes complement and confirm the results of the previous chapter (descriptive analysis) in terms of both the managerial specialisation and professional educational background of Saudi managers. The managerial specialisation was noticed when nine project-specific forces out of five financial, strategic and informational determinants significantly influence both escalation and de-escalation of commitment decisions compared to ten non-project specific forces out of nine psychological, contextual, and organisational determinants significantly influence mostly managers’ escalation decisions. The professional educational background was perceived in the significant influence of managers’ educational background on their de-escalation decisions.

Second, the results of the analysis were obtained from different levels of managers' experience (according to their jobs positions) types of companies, and were related to different types of projects that failed in different time scales. Therefore, the dual influence of several items on managers' choices is expected and can be explained within the strong capability of the approach-avoidance theory to rationalise managers' behaviour in conflict situations, particularly within the time element (Pan et al., 2009). Third, the socio cultural effects in terms of (as explained in Chapter Two) family managed companies and the father image of Saudi managers explain the significant influence of non-project-specific determinants on managers' escalation decisions. For example, Saudi managers continue adding resources to a failing project because they are justifying a previous decision.

Finally, the importance of capital investment decisions in Saudi companies was supported by the moderation role of operational project audit, which is a part of the capital investment process, whereas several levels of project audit influenced the effect of (de)-escalation determinants on managers' decisions of commitment, these determinants are mostly related to the investment project in terms of strategic and financial factors.

The next chapter will present the results of the semi-structured interviews that could provide further explanations of the escalation/de-escalation phenomenon and to clarify the results reported using the questionnaire survey.

## Chapter Eight

### Project (De)-Escalation Decisions in Practice: Three Interview-Based Case Studies

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#### 8.1 Introduction

The aim of this chapter is to extend the analysis presented in the previous two chapters, with interview-based information from three survey participants who have had firsthand experience with of the escalation/de-escalation decisions in their respective companies. A succinct summary of the three case studies is presented in Table 8.1 below.

**Table 8.1: Summary of (De)-Escalated Projects**

<i>Project</i>	<i>Period of escalation</i>	<i>Type of de-escalation</i>	<i>De-escalation determinants</i>
Food products factory	5-6 years	Quitting the project	Psychological, contextual, organizational, strategic, financial.
Long distance trucks	One year	Redirecting and Putting the project on hold	Financial, contextual, strategic
Constructing a new building	Three years	Stopping and replacing the contractor	Psychological, contextual, financial, strategic, informational

The interviews conducted at the three companies were part of the mixed-methods approach adopted in this study to collect sufficient primary data on the complex and multi-faceted problem of commitment escalation in capital project decisions. In order to maximise the return from each interview, careful steps were followed, as explained in Chapter Five (Section 5.7), in its planning and conduct. In each case, the interviewee had full approval from his company to take part in the interview and a copy of the questionnaire that they had completed and returned was given to them by the researcher, in case they did not keep one, in order to remind them of the answers they had provided in the survey and help anchor the interview thereupon.

The style adopted in writing the three cases is that used by existing case studies' literature on the (de)-escalation of commitment, particularly (Drummond, 1995; 1997; Drummond and Hodgson, 1996; Pan et al., 2006; 2009). The structure of this chapter is defined according to this style, with each of Sections 8.2-8.4 dedicated to one case study, whereby the transcribed interview is presented first, followed by an analysis of its contents. Adopting this style facilitates comparison, with previous case-based studies that used the approach-avoidance theory (see Chapter Four).

## **8.2 Case Study One**

This is one of the largest companies that took part in the questionnaire survey. The project escalation case described below concerns opening a new factory in another country of the Gulf region by a Saudi Arabian company that specialises in the manufacture and distribution of food products. The newly-opened factory faced financial problems and was shut down after an enormous fire. To put this case into context, a brief introduction is first given about the company and its main industry, the food products sector in Saudi Arabia.

### **8.2.1 Company Overview**

The company was established in the 1970s with an initial capital of more than SAR 35 million (approx. \$11 million) and grew significantly since then to become a multinational company that is now valued in few SAR billion and having over 50% share of the country's food product market. The company is considered one of the most successful and fastest growing multinational food groups in many countries in the Arabian Gulf, Middle

East, North Africa and Central Asia. The company has enjoyed a steady profit growth and is expected to achieve a profit of around SAR 2 billion (\$480 million) by the end of 2014.

The food industry is a rapidly growing sector in the Saudi Arabia. For instance, according to the SIDF<sup>7</sup> report (2012) in 1974 there were only 39 food factories with an investment of SAR 2,028 million (\$540.8 million). By 2011 the number of food factories had risen to 785 factories (i.e., 20.13% increase) with investments of up to SAR 42,117 million (more than \$11,231.2 million), i.e., a 20.76% increase. Several factors were suggested by Al-Jefri (2008) that influenced the growth of the Saudi food industry which is increasing at the rate of 20 factories per year, to meet the growing demand for food products, and to solve the local food store imported from abroad:

- 1) Progressive realization of the population.
- 2) The increasing proportion of pilgrims each year.
- 3) The investment of the Kingdom in the oil industry, which led to a significant increase in the purchasing power of the local population.

The food industry started over 50 years ago in 1953 with three factories: an ice factory in Makah City and two in Jeddah City, where one of them produced soft drinks. The SIDF report (2012) shows that the total area of existing industrial cities in Jeddah City is 45,000 square metres, spread over 12 major activities, including the dairy industry, the manufacture of beverages, fruits and vegetables plants, packaging and preservation of fish, the manufacture of vegetable oils and animal fats, grain grinding, baking products, sugar refining, animals and bird feeds, the production of animal and bird meat, and the

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<sup>7</sup> SIDF: Saudi Industrial Development Fund

manufacture of cocoa and chocolate, sweets and candies, as well as other secondary food industries.

In addition to the diversity of food products, the Saudi food industry leads this sector in the Gulf Region where the Kingdom exported SAR 12,605 million (\$32, 694.67 million) worth of manufactured food in 2011 (SIDF, 2012). This success is, due to four main reasons: a) the Saudi government's support to the food industry in terms of attracting new technologies that reduce costs and increase production, b) the manufacturing and preserving of legitimate (Halal)<sup>8</sup> food, which has found a market in many Muslim countries, c) the development of the packing and packaging industry that has enhanced the quality of the food products, and d) the development of advertisement industry to target customers both locally and abroad (Al-Jefri, 2008) .

### **8.2.2 The Interview Transcript**

The interview was conducted at the company's head office and lasted for two hours with Mr A, who was the manager of the newly-opened factory, and who now holds the position of Chief Financial Officer (CFO). The interview transcript presented below is organised in segments with sub-headings that summarise the key points addressed during the meeting.

The investment opportunity when first was presented to the management in the company's head office was a very good opportunity:

“It was a successful business, we know how to sell our products, and we know how to make our products. We know how to run factories, we know how to source our products, and we know the market we were going into, we looked at it and said ok, because,

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<sup>8</sup> Halal means not prohibited according to Islamic sharia law.



definitely when you go into an opportunity that was presented to you or a business that you are not in and try to expand. When you invest definitely there are some successes and some failures, in success everybody celebrates highlights but failure is different. We are a courage company.”

The reason for investing in another country in the Gulf:

“When we used to have only one factory in Saudi Arabia, we wanted to expand in the Gulf countries (GCC) so we opened a factory in one of the countries. We looked at it and said: if we want to expand do we go 2000 km away or we go 600 km away? Then we can represent issues we can manage. So we opened a factory in the Gulf. The aim of the factory was to supply part of the Eastern province and to cover the GCC market and eventually reach the portion where we wanted to expand.”

“The store capacity in Saudi Arabia was 100-120 thousand tons, we always thought that in order to increase the capacity you have to build a new refinery, you can do some additional steps and additional investment and buy new machines with a faster capacity. We had the refinery capacity but we did not have the filling capacity.”

“At that time we had limited space in Saudi Arabia; we were sort of thinking of the pocket rather than from the market. So we were told that Saudi requirement is this much and people came and tell us: you know we don’t have the capacity, we have this issue, and we have that issue, so we opened a factory in the Gulf to cover for that.”

“It was a successful business, we know how to sell our product, and we know how to make our product. We know how to run factories, we know how to source our product, and we know the market we were going into, we looked at it and said ok, because, definitely when you go into an opportunity that was presented to you or a business that you are not in and try to expand. When you invest definitely there are some success and some failure, in success everybody celebrates highlights but failure is different. We are a courage company.”

The company’s strategy in relation to that investment opportunity as:

“The strategy formulation of the company, this is a very flexible very dynamic way of formulating the strategy. We are not a one-man company, there was a complete study that was done, and a complete market study and financial study it was validated, initially we had people saying to us that you have a limited window to try otherwise you should stop, we prioritise.”

The feasibility of the investment was built on three strategies:

“This factory is serving the Eastern province, because if you ship from Jeddah to there it is more expensive, and to Gulf countries it is more and more expensive. With capacity

constraints in Saudi what is the nearest location? There was also a view of point which is Iran that has a huge population. This feasibility was based on 20-25% in Saudi, 30-35% Gulf country, and the rest to export to another neighbouring country.”

Although all calculations encouraged the company to commence such investment, still the company knows very well that:

“Not everything I invest in will turn good; we invested in another country seven years ago, and we know the powerful people are behind this fight, we want to close now. We can’t fight powerful people; we can’t lose the shareholders money. You fight a battle but you don’t go into a war.”

“We had the same issue in a different country, we had a plant and we had a competition that we didn’t like, the thought in the company was why fight when we can merge? Share a bigger piece of the pie than fighting for a small piece. So we went for joint venture, because before they lost money and I lost money because of the price. It’s a win-win situation; we are not playing with the shareholders money.”

After opening the factory in the 1990s, several problems emerged:

“It was running at 50-60% capacity but not very profitable and so we can say that although all the feasibility and everything were, we had no fundamental problems in the director. That factory had a very nice set up and a very good distribution setup. It operated in 1992 so I was managing it there it was struggling at that time because of the capacity constrains but it was fine.”

“By the time the factory was set up, dealing with the other neighbour country became very difficult because of the political relationship, we used to have the export partners from them but they were not very consistent: they are here one month and four months they are not there. If you are doing this on a consistent basement you cannot pursue.”

It is a special case because:

“You can’t produce food and store it, if you produce and store for 4 months then you put it on the shelf by the time it goes to the consumer the oxidation levels increase. The food which we produce if you want to order today you have to wait 1-1.5 months in advance, so we can’t operate a huge factory with a huge food production without this prediction.”

But the biggest problem the factory faced was:

“Five, six years down the road we had an arson fire there which made the factory unusable for quite some time. Since it was covering the Eastern province market (which is a good market) and covering the Gulf (which is a good market) we couldn’t just shut up the suppliers and say sorry we cannot supply the Gulf. We went into the crash mode; the

damage to the factory in that Gulf country was very massive meaning it took us one year to complete to rebuild. So it was not that damage in partial section or this section, it was a problem for the whole factory, so we went into the crash mode.”

It was a large problem that had one solution, which is closure for several reasons:

“The fire triggered a thousand problems; you did things with little tinkering, if you are working right but you did not achieve the target you continue, let’s do this it will add 2% to profit, but the fire opened the eyes as we went to the crisis mode.”

“We identify that we cannot let this market go away, otherwise we let the competition coming, so we took some steps and we saved a life. During those crises which we should have things coming out, ok look: how can we tinker a little bit this and a little bit that, we do some adjustments in our machinery we add few machines and we hope we can over produce that additional capacity which we were producing in that Gulf country, we do it here in the Saudi factory.”

“That started at hard process, ok fine that is ok, now the factory is rebuilt, “what to do with it now?” I have the capacity here, shall we keep that factory? Or close it? It was a prestige issue at the company in a country with all this muscle and then after six years I want to close it.”

“But when we looked at it we said ok, what to do with it, we went to talk the feasibility of it. We said ok fine maybe it had a flow, people rejecting it said we do this and we do that and we cover the shortfall. Then we said look from the outside the capacity in that Gulf country accessed because we still can produce in Saudi and cover all this so we agree on lets close.”

In order to close the factory, several issues had to be addressed:

“But again we did hire a consultant who did the financial bits what to do with this factory, because we have that stuck investment there in order to meet the demand in the Gulf and the Eastern province, I’m spending roughly speaking SAR14 to 15 million additional in terms of the wages and extra fixed costs so we can issue the distribution.”

“The study from the consultant came out and said come on, you can consistently supply this one if you do some additional investment in Saudi, and we can move some of the parts from that Gulf country to Saudi then we can reduce your fixed costs but still maintain your capacity.”

“Then what we did we look at it from different thoughts then we said financially it makes sense. Then we brought in a technical consultant because moving a machinery is not only moving the machine, but you have to look at the technical special issues of the machine, because the electrical cycle in Saudi is different from the one in the Gulf country, how

much will it cost us to convert those machines, its filling line. So it took us 3 months to do a technical evaluation, so teams were formed to consult, technical people from Saudi and technical people from the Gulf country as well, they said ok some of the machinery we can move but you can't move all of them."

"You can move the refinery but the moment you remove the refinery whatever you spend on the refinery your salvage value will be less, let's say you spend SAR10 million you will only get 3 million because of the piping, the wiring, and the panels. Again air-conditioners you cannot move. It took us 8 months to start the moving and closing the factory."

"Again there was a big problem coming related to a key asset: what to do with the human element? You can't close the factory and say ok goodbye. We went into negotiation with the government of the Gulf country, we said look we have this financial study, we got that technical study. It is not viable for the company, the shareholders, we have certain factors, we are at some time contributing to the economy, we have 200-300 employees, and can we have substantial support from the government side? But the government said no we cannot do it."

"Again it took some time, so we had our execution plan; it took us 2 years to close the factory from the time the decision was made till the final closure. Legally the company on paper is still there, there are certain legal cases we are closing, we understood the equity will take time, we understood the complication will take time and the teams that were formed were headed by fine people; one of them from the financial side (what to do with direct cost). A team was formed for the technical side, a team was formed from the human resources side, and a team was formed from the sales side (how to handle customers)."

"We went to the closure event activity by activity and take it into consideration to close. What steps are necessary to ensure that we are not unfair with anybody including the shareholders and not to destroy the value? For the workers we looked who can be preserved and where, who needs financial support?"

"Since the decision to close we didn't face anyone who went to court and said that the company was not fair to us because we kept them in the picture from day one the project was shaking. So we first took care of our employees."

"Then we took care of our customers and the sales side. For you as a customer there is no change; the company will have new supply for Saudi, additional costs whatever they are we will pay, it will not pass onto the price, the cost of distribution to you."

"Then the hard part came, when disassembling the factory. We were starting a factory in North Africa so we asked do you need this part and so on, even the left office furniture we went to other companies saying we have those offices do you want to take and so on."

The proficiency of the company when dealing with the situation:

“When I walked away from the Gulf country factory, I had only two brief cases, that were legal documents, but still though we left we kept our information system employees to keep testing the machinery. It was a very compressed process because of the situation, when you go into the new investment nobody is worried about the costs but when you are closing the factory everybody is worried about the costs.”

“We spoke to our employees and said if the company wants you back do you come, they said yes. All reports are transferred whether it’s our financial reporting our dealing with employees, our dealings with suppliers, we don’t keep things to the last moment then surprise them, and people appreciated this.”

With regard to the expected profit and the review of the factory’s condition:

“We review after five years and ask have you reached your goals and, if not, why? What went wrong? What is going on? Before doing the closing, there is one thing: this company was not 100%, we had problems, when we went to the feasibility study we promised certain returns: 10% or 15% or 6%.”

It is what was described as the “*panic mode*”:

“When we were in the panic mode, you do up thinking if the fire took place 2-3 years after opening the factory it’s nothing; but it happened after 5 years, the company lost its capital twice, we knew that when you go to a new market it will take time.”

Investment appraisal techniques applied to justify the chosen investment in setting up the factory.

“We look at the market share then we look at the sensitivity of the cash flows then we use DCF. The cash flows in this investment, working capital requirement to enter this investment. When we do the sensitivity analysis we look at what line will break even, where I am cash neutral, export market in another country. We look at the shareholders have they invested this much of money to get only 3% or 4% or 10% revenue.”

“DCF calculations are one of the parameters, we do look at the intangibles. It is again my understanding of the business to be in the future, what is the dynamics that affect this DCF. For us other factors do count, plus that the NPV is positive I look at the business itself, giving the challenges, where I will operate, which market, which category and with which customers. Business dynamics at the lower level so DCF and NPV are not the final factors. The NPV and DCF in that Gulf country were done by a financial consultant.”

“The business community differ; we normally have 40% GP margin in that Gulf country if I had 3% net then it is very good business. Return on dividend: what is the discount rate for the sugar is not the same for the plastic or oil. The risk (beta) and the dynamics of the investments are different, it depends, and we adjust it for the industry and the country. For the beta we use the cost of capital against the dynamics and risk and revenues of the business. It is the cash that makes it.”

“What is this risk, someone says that the risk is that we shall not capture the market share but what is the problem with it? Is it competition? You want to buy the market share or you want to build the market share? What is the price? One is a long duration one is a short but expensive.”

#### There were working capital considerations.

“This tightens the investment’s impact on product cost. An avoidable investment in working capital and its effect on operational efficiency in terms of costs and what can be done are these things. There is a difference between if you are a large player or a small player. If you are a large player, then you can go for negotiation, if you are small then you have to go for the rules of the supplier. There is the value buy, the supplier income, supply chain, you need to find a solution for the industrial business customers.”

“The supply chain is very long; if I want to be competitive, I have to order and place one month in advance, then after those 15-20 days in the distribution. Then capacity constraints: you can run the same capacity with 100 tons a day or 200 tons a day through loading or filling line.”

#### Reactions of the board of management at company’s head office to the closure decision.

“Initial management or initial board have been conservative, in this business you can lose your shirt so go and do piece maintenance small which does not affect you so badly which will create a problem later on. The factory was 100 thousand capacities in order to supply the gulf countries you can either increase capacity or build a new factory.”

“But when the fire happened, it was a shock; we said thank God we did not put all of our eggs in one basket. You have to cover your costs to stay on your toes, you have to be big so you can make more money with little margin. My product is 75% of raw material over which I have no control.”

“The resistance of the Board was because of the image of the company, not how much you lose. You have to be brave enough to say I made a mistake; you want to live with this mistake or face it and get out. What is the problem?”

But finally, the decision to close was not easy:

“It took around 18 months before the actual closure decision of the factory took place. The company had so many losses that it had to recapitalize it twice.”

“It was not the survival of the factory it was the survival of the whole company. You cannot lose your customers you cannot let competitors come in and then get out to the company, what shall we do? Before the fire we worried about why is it behind, but the crisis created a panic mode. It was not the phrase “let’s close the factory”, it was maybe there is something wrong we are doing that caused this.”

### **8.2.3 Case Analysis**

The case is an example of a decision that did not turn out well as planned. Instead of persisting for a long time, the company withdrew. Decisions related to the case can be categorized into three stages: the first is the commencement and operating of the project where the company continued to add resources in order to maintain the existence and profitability of the project; the second stage is when the fire took place and the challenges the company faced to rebuild the factory, and the third was the decision to close and shut down the project.

In the first stage, when the factory was opened, the level of achievement was less than expected: “*not very profitable.....it was struggling at that time*”. The main reason for the setback was attributed to contextual determinants “*because of the political relationship.*” However, the factory kept its production level in order to justify the company’s persistence decision “*if you are working right but you did not achieve the target you continue, let’s do this it will add 2% to profit.*” This stage ended after five to six years from opening the food factory when the fire took place “*which made the factory unusable for quite some time.*”

The second stage of the escalation decision started when the fire took place, as *“the fire opened their eyes”* to see that the factory was not facing goal attainment problems anymore or that the achieved profit was below expectations. It would be more appropriately described as *“we went to the crises mode.”* The fire not only affected the existence of the factory but it extended to affect the whole company where *“the company lost its capital twice.”* The stage ended when the company decided to rebuild the factory *“we identify that we cannot let this market go away, otherwise we let the competition keep coming, so we took some steps and we save a life.”*

The third stage, which started in the rebuilding of the factory *“took us one year to complete to rebuild”* had a major conflict *“what do we do with it now? Shall we keep the factory? Or close it?”* it is no longer a profitable opportunity but it is now a *“stuck investment.”* On the one hand, there are forces dragging the company to make the withdrawal decision; the most important being the ability to cover the market needs *“we hope we can produce more in the Saudi factory than we could in that Gulf country”* and the increasing burden of the financial cost *“I’m spending roughly speaking an additional SAR14 to 15 million.”*

On the other hand, two obstacles prevented the decision to withdraw: the first is the number of employees *“we have 200-300 employees”* and the second is how flexible it is to transfer and operate the machinery *“the technical issues of the machine, because of the electrical cycle in Saudi Arabia which is different from the one in the gulf country.”* After



consulting financial, technical, and a human resource specialist the final decision was “*we agree on closing down (the factory).*”

In addition to confirming both the descriptive results (see Chapter six) and those of the inferential analysis (see Chapter Seven), the escalation/de-escalation determinants in this case are similar to some of those found in a number of relevant case studies (see Chapters Three and Four) (i.e., Drummond, 1997; Mähring and Keil, 2008; Pan and Pan, 2011). However, new variables were found that did not exist in similar cases, such as ‘*covering the market needs*’. Further, in the current case non-project-specific determinants (i.e. psychological and contextual) are considered as *approach* attributes while project-specific (i.e. strategic and financial) determinants are considered as *avoid* attributes (see Table 8.2).

**Table 8.2: Approach-Avoidance Attributes in Case Study One**

<b><i>Determinants</i></b>	<b><i>Approach</i></b>	<b><i>Avoid</i></b>
Psychological	Justifying an earlier decision, High self-esteem	
Contextual	Political issues, Justifying external parties, Noticeable effort, Norms of modeling	Political issues.
Organizational	Company’s image, No. of employees, The linkage of the project to strategic existence of company is significant, High investment in technical side-bets.	Company’s image, Saving the company’s reputation.
Strategic	Cover the market needs	Efficacy of resources utilization, Frequency of project progress reporting, Consultation, Unattainable goals.
Financial	Sunk costs, The availability of the project's costs and revenues	The availability of the project's costs and revenues, Withdrawal costs are significant, Extra funds required could not be raised in time to save the project, Profit is less than expected.

In more detail, non-project-specific determinants (psychological, contextual, and organisational) have taken place first: *“It was a prestige issue for this company in a country with all this muscle and then after six years I want to close it.”* Where *“initially the board had been conservative..... The resistance of the board was because of the image of the company,”* and *“We had the same issue in a different country.”* Therefore, justifying a prior decision, high degree of self-esteem, protecting the company’s image, and norms of modelling were approach attributes.

Organizational and strategic determinants were very clear as *“it was not the survival of the factory, it was the survival of the whole company....., we first took care of our employees....., we spoke to our employees and said if the company wants you back would you come they said yes....., you cannot lose your customers you cannot let competitors come in and then get out of the company....., we took care of our customers.”* More strategic considerations were topped the priority list in the withdrawal decision: *“In this business you can lose your shirt....., teams that were formed were headed by fine people from the financial side; what do we do with direct cost, a team was formed from the technical side, a team was formed from the human resources side, and a team was formed from the sales side to handle customers....., we are not playing with the shareholders’ money.....we review after five years and ask if you have reached your goals and if not what went wrong.”* Consultation, for example, was considered a strategic avoidance attribute, which is consistent with what Pan and Pan (2011) have reported in a UK case study that consultation in terms of the meetings between all project members to review project problems jointly and identify possible alternatives was a de-escalation tactic.

Financial determinants were also always evident: *“The company had so many losses that it had to recapitalize it twice...., You have to cover your costs to stay on your toes...., you have to be big so you can make more money with little margin...., when you go into the new investment nobody is worried about the cost but when you are closing the factory everybody is worried about the costs....., and additional costs whatever we will pay it will not pass on the price.”* Only two financial determinants were considered as approach attributes, which were sunk costs and the availability of project’s costs and benefits.

### **8.3 Case Study Two**

The case described below is related to expanding the current business of a transportation rental company to invest in big vehicles such as trucks in Saudi Arabia. To put this case into context, a brief introduction is first given about the company and its main industry, the transportation vehicle rental sector in Saudi Arabia.

#### **8.3.1 Company Overview**

The transportation rental company is one of the large transportation rental companies in the country. The company was founded in in the 1970s with an initial capital of around one million SAR (\$267,000), one rental office, and few vehicles only. Currently the company’s capital is almost SAR 200 million (\$48 million) and it owns around 20,000 vehicles in covering a wide geographical area throughout the country. The project under consideration in this case study is a new investment opportunity that the company embarked on but after facing an essential obstacle it decided to put the project on hold and redirect the investment in a way that saved the company huge losses.

The Saudi transportation rental market is a growing and promising one. The size of the industry exceeded \$530 million in 2010, and was expected to continue growing in the foreseeable future. It is estimated that car rental market will grow to reach SAR1.1 million by 2017 (Euro-monitor International, 2013). There are several reasons that for the growth of the transportation rental industry in Saudi Arabia (Middle East, 2007):

- Local movement of citizens and residents in the country.
- Wide geographical area in Saudi Arabia that requires travelling between regions, which demands the need for travellers to rent transportation at all airports.
- Companies' need to distribute their goods and consumer products as well as courier companies that rely mostly on rental transportations through specialized leasing companies.

### **8.3.2 The Interview Transcript**

The interview took place at the company's head office and lasted for two hours with Mr. B who is the company's Chief Executive Officer (CEO). Mr. B was glad to be interviewed after answering the survey questionnaire as he started the meeting by expressing his admiration for research project and the depth and quality of the survey as they related directly to his company's experiences. Further, he stated that some of the questions had opened his eyes towards new elements that might be important to the decision making process particularly and that thanks to the survey questionnaire he was able to tackle very complicated project issues in his company and share his findings with the company's Board.

At the beginning Mr B explained the reason for expanding the company's business:

“There is no doubt that all companies are looking for an expansion or extension for their plans, we too are looking for the growth in our field which is purely car rental. During the past seven years we have been working with a 20-25% profit margin, but the piece of cake and market size itself changed in seven years, we got to almost 25-30% of the market share.”

“We developed our research and started to look for other projects to launch, we thought of projects that are related to our business. We have a road transport using the large trucks in this country that we don't operate and we know that the size of this business is huge, and the size of investment is huge. For example, the smallest truck and the box behind to carry cars or any other wares would cost up to \$200,000 to \$250,000.”

Further, he explained how the investment was accepted:

“We started to investigate the market for such project; we are convinced that the project is related to our business, it is still in the transportation but in a different way. We truly studied the project carefully, on the one hand the project's feasibility is very high: great, the investment: we are cash rich company, we have enough money why don't utilize up to 25% from the facility offered by banks, as our lending capacity is very high why don't utilize it?.”

“So the first resolution is that we have the cash, the demand is very high for this type of service, it is required dramatically by the market. There is no large company that have a project like that, they are all small individuals' investors; this one has 10 large trucks, another has 5 large trucks, so we said lets open a project for the large trucks as we have large clients database all saying we want to work with you.”

The investment was launched:

“We started to buy some of the equipment as we are engaged in the project, you cannot imagine what the biggest drawback that made us repeal the project: , the type of truck drivers needed do not exist here in the Kingdom now, and if found they are a very small number. I was talking about a large business we want between a thousand to two thousand trucks. Pakistan is the number one provider for such trained drivers.”

But the project faced a setback:

“A major obstacle was that we need to issue visas, as we don't have visas for foreigner drivers, we have to meet requirements for Saudization. The problem is that the employee required is an employee who does not exist in Saudi Arabia, and if they exist, they are very few numbers. In order to grow in line with the demand of the business I don't need equipment, I am in need to work with a driver, as the service offered has to be a full

service not only the clients want the car, as we can provide them a car rental, they want their wares to be taken from here to there and the customer pays you. This is one of the reasons that made me understand why such business is run by individual investors as this one has ten and that one has five trucks, because he has five or six visas. But we are not aiming for a project that has 50 or 60 or 70 trucks, we have 18,000 cars to go and if we want to go for a project we have a target at least of SAR100 million returns to start.”

“Drivers who drive these large trucks must be well trained, because we found that non-well-trained drivers are a big loss for the company; these vehicles if not driven by well-trained drivers would cause fast engine failure which costs SAR100,000. If the driver was driving fast and decided to stop suddenly might cause wires cutting which costs SAR50,000. So look how much one mistake would cost me. That is why skilled labour that knows how to operate properly is the foundation of work in transportation. That is why no one operates in this business; it is either individuals they have few trucks or companies that move their products alone. We started the project and felt that what we will not reach a high target and after we arrived to ten trucks there is a high demand we cannot provide the service.”

After one year of initiating the project:

“We took the decision after a year that we stop and hold, what did we do with those trucks, so we don’t have book closes, we turned them to trucks that move our rental cars between cities.”

Was the information regarding the availability of drivers, which is a strategically important piece of information, obvious by the time the project was studied?

“There is no doubt that the information was obvious, sees the sensitivity that the operation was successful if I get a range of visas, and would fail if I don’t get the visas. And we return what comes first the eggs or the chicken: you start by getting the visas and bringing in the drivers or you prepare the equipment of the project first. We had promises that 300 visas for drivers would be granted; we took the decision that it needs more than six months to prepare those trucks, so we start by ten trucks while we get the visas. The visas are the roulette ball that you throw and, if it hits, the project is achieved; all the other elements are all present to us. If the visas are provided I can travel and look for the country where such labour is available, why I said Pakistan because I can find 1,000 trained drivers. We studied carefully, even from where to get drivers we find that Pakistan is the best because the country relies mainly on trucks in the transfer of goods, people and everything.”

“The life of truck drivers is hard because they are away from their families for a month travelling from here to here, and it is a difficult life. The driver is available, the equipment is located and the financial capacity exists and everything is available. So the visas are

provided or not this may be the main obstacle for the failure of the project or the key factor in the success of the project.”

“With the current circumstances and the subject of unemployment and Saudization after meetings with the former minister we knew that there is no possibility to get the visas. As Saudization is a national requirement, it is not necessary to start a business it is employing Saudis. We stopped the whole project and we think now to go for training Saudi truck drivers. We begin to study that would the Saudi labour accept to work as a truck driver and he has a future in it. We started thinking in a different way now, we still believe in this opportunity, but can we make the project succeed?”

Was there any reaction from your client companies?

“The lack of this service in the Kingdom has forced companies that produce products with expiry date such as food & dairy to set up the self-shipping service for their products. The feedback we got that they are very sorry we cannot continue because they will concentrate in the core business which is manufacturing and they don’t want to go for the big headache of distribution and transportation.”

“It is hard you start the business and you do not have clients, we have clients that are happy to give us their trucks. Another type of companies do not have a special department for distribution and they rely on individual drivers, someone has three trucks in Medina City another has five in Mecca City, the problem that it depends on the drivers when they deliver the service, it is supposed that the gasoline in the truck brings me the goods in 48 hours but the driver delivers me after 5 days I subtract the difference in days. I have ready customers I made a survey (study) I knew that I can go for 1000 truck in one year, but the drawback is the lack of trained drivers.”

### **8.3.3 Case Analysis**

The de-escalation decision in this case differs from that of the food manufacturing company (case study one above) in that the decision was put on hold: “*we took the decision after a year that we stop and hold*”, then the project was redirected not terminated: “*what did we do with those trucks, so we wouldn’t have book closes? We turned them to trucks that move our rental cars between cities.*”

Several determinants have influenced the company's de-escalation decision (see Table 8.3), which took place after one year of initiating the investment in trucks. These determinants have similarities to those reported in a number of previous case-based studies (see Chapters three and Four) for instance Ross and Staw (1986), Drummond (1995) Keil et al. (2000) and Pan et al. (2006). In the current case, non-project-specific (contextual) determinants were considered as *avoidance* attribute, while project-specific (informational) determinants were considered as *approach* and (strategic and financial determinants) *avoidance* attributes.

**Table 8.3: Approach-Avoidance Attributes in Case Study Two**

<b><i>Determinants</i></b>	<b><i>Approach</i></b>	<b><i>Avoid</i></b>
Financial	Availability of funds	Availability of the project's costs; high maintenance costs, redirecting costs less than keeping project
Contextual		Political interference to discontinue the project.
Informational	Incredible information	
Strategic	High demand for market	Low degree of project completion, flexibility to restructure the project, availability of alternative investments.

In more detail, three project-specific approach attributes were noticed in this case study: financial “*we are a cash rich company*”, informational: “*We had promises that 300 visas for drivers would be provided*”, and strategic: “*the demand is very high for this type of service.*” These attributes made the company continue the investment even when they faced a main political difficulty: “*we need to issue visas, as we don't have visas for foreigner drivers; we have to meet requirements for Saudization.*” In the escalation/de-escalation literature, these determinants were found to influence managers' choices (see for example, Keil et al., 2000; Cuellar et al., 2006; Chakravorty, 2009).



Compared to approach attributes, more project-specific determinants were considered in this case as avoid attributes. For example, financial determinants existed in terms of “*these trucks if not driven by well-trained drivers would cause fast engine failure which costs SAR100,000. If the driver was driving fast and decided to stop suddenly it might cause the cutting of wires which costs SAR50,000.*” Further, strategic determinants influenced the de-escalation decision within two items: “*we had ten trucks..... I can go for 1000 trucks*” and the second item is “*we turned them to trucks that move our rental cars between cities.*” In addition to contextual (non-project-specific) determinants such as: “*A requirement for Saudization, the problem is that the employee required is an employee that does not exist in Saudi Arabia.*” These determinants were found to influence managers’ decisions in the escalation/de-escalation literature, (see for example, Ross and Staw, 1986; Newman and Sabherwal, 1996; Kiel and Robey, 1999; Pan et al., 2006; 2006).

For example, in a case study in the UK, Pan et al. (2006) suggested three steps to redirect a project: a) unfreeze commitment to the failing project, b) changing previous beliefs, and c) refreezing new attitudes. They found that several factors have influenced managers’ decisions to de-escalate commitment (through redirecting) such as the strong political support to redirect the failing project because of the availability of a feasible alternative course of action. In another case study in the UK (2006), Pan and his associates found that because there was a false perception that the failing project was close to completion in its early stages of development, managers succeeded in turning around the failing project and being closer to success.

## **8.4 Case Study Three**

The case described below is related to constructing a building for a public organization. To put this case into context, a brief introduction is first given about the company and the industrial context of the case which the real estate sector in Saudi Arabia.

### **8.4.1 Company Overview**

This public organization was first established in the mid-1970s then re-structured in 2006 to include several activities such as managing projects, and maintenance directing. The organization invited bids for the construction of an important new building, where a contractor won the project by providing the least-price. However, after three years the amount achieved was below the expected standards, the company withdrew the project from the contractor to save the company major losses.

The Saudi real estate market is identified as one of the most promising and dynamic sectors in the Middle East Region. It is valued at more than SAR1.3 trillion (more than \$300 billion, and expected to reach SAR1.5 trillion (\$400 billion) in the coming years because of the high demand from investors (Arab-News, 2014).

Several factors that might influence the real estate growth in Saudi Arabia were suggested (JLL, 2014; Arab-News, 2014) as follows:

- The strong economic growth as the government aims to diversify the economy by developing non-oil based sectors (see Section 2.3) on the one hand and the oil revenues used to fund high public spending on infrastructure on the other hand, which both provide a strong incentive for the growth of the real estate sector.

- The rapid growth in population; from 6.2 million in 1970 to over 27 million in 2012, where 45% are under the age of 20. A large number of young Saudis are now setting up families, which increases the demand for modern retailing as well as the country's residential market.
- Saudi Arabia's rapid rate of urbanization, as more than half a million new urban dwellers a year move to cities that satisfy their needs and provide better public or private services to them. Additionally, the government plans to build economic cities around the Kingdom as well as the science and advanced technology university which have enhanced the real estate market development.

#### **8.4.2 The Interview Transcript**

The interview lasted for 80 minutes at the company's head office with Mr C, who is the head of projects at the company, and is thus directly involved with project management.

Mr C started by generally explaining the general reasons for project failure in the public sector:

"Stalled projects in the Kingdom do exist, conferences are held to discuss such projects and their causes of failure. Some causes are related to the contractor, to the financing, or respect to the owner. There are two main reasons for the faltering projects at the company: the first is that contractors take projects more than their capacity (full loaded) so they can't pool resources and provide employment, and the second is financial where all contractors commencing projects are financed by banks as they operate and then, take extracts from the company according to the development of project so liquidity is the spirit of the project; no liquidity no projects."

"Other reasons related to that some contractors who won the bid of the project has the intention of selling it to another second-sub, in the company something like this doesn't happen because we have a strong monitoring system and an advisory that checks things out."

"Another important reason is that the contractor tends to burn the price, as he wins the project bid with the lowest price and then he realizes that his estimations were not correct. He knows from the beginning that he will lose in that project so he delays the project, and doesn't fulfil his obligations, he says why waste my time and my effort in a project that is a loss, because he placed prices less than available on the market and we at the company

have certain standards that we don't accept lower than the approved suppliers and materials. Anything new is required tests to make sure it is identical to the criteria set."

How projects are accepted within the public sector:

"Government procurement system declares that if the price submitted by the Contractor is more than 35% of the original price can be ruled out but if less than 35% it has to be considered, for example, the original price is SAR100 million, the price of the contractor is 70 million, he wins the bid though I know that he will lose and cannot complete the project, he wins the bid, otherwise he might complain to the office of Grievances."

The case the organisation faced and the reasons that drove it to withdraw the project:

"We had a project that we removed from the contractor; the project was related to constructing a building. The contractor won the project bid and spent a long time but his performance and progress were very slow, after several meetings trying to move the project forward, we arrived at the decision that he cannot continue the project. He won the project bid according to the system, he offered the lowest price and there was some difference between his bid and the one above him, he offered SAR121 million (\$32.3 million), and the one after offered SAR124 million (\$33.1 million). The building was supposed to end within 36 months."

"The contractor significantly delayed the project and the entire market prices rose, his performance was weak, which means over 30 months his weak performance didn't exceed more than 2% of the project's expectations. Several meeting occurred and the government system declares that he must be given first and second warnings. We had a weekly report from our consultant about how much of the project the contractor managed to complete."

"The contractor gave us a time schedule that showed what he would accomplish each week and what labour he would provide, so we compared the planned schedule and the actual to calculate the difference between them. If the difference was negative and exceeded 10% we gave him a warning; if less than 10% he was urged to intensify his efforts and do better to make up the difference. If the difference adds up and he cannot cover, we give out a second warning; if the gap is bigger we go for more serious procedures."

"We continued according to the governmental procedures and we gave him warnings according to the system, because all the contractors we give those warnings but after such alarm things get better. We found that it was hopeless as the gap was increasing, there is no hope that things would get better; and then we started looking withdrawing of the project."

"Of course, the project withdrawal is never in the favour of the project, because the withdrawing process takes a long time and then the need to put the project back for

bidding. You have three ways to end a contract 1) withdrawal, 2) the contractor gives in the project with same design to another contractor, or 3) we manage the project ourselves. Withdrawal of course is the worst solution and takes a long time; it took nine months in order to withdraw the project and take the approval of the relevant authorities. From the time we stopped the contractor, as he went and complained to the office of Grievances and other committees, we must wait till all the complaints are through to withdraw the project.”

“The project was first initiated in 2008 (1428h) and the withdrawal procedures started at the beginning of 2011 (1431h) and were completed at the end of 2011”

“The contractor came from Riyadh City and opened an office at the site and provided a project manager and a certified accountant. When we sent him a letter after the project was withdrawn he did not receive it for some reason, so we had to send it to the chamber of commerce who handed it over to him.”

“He faced many technical problems as he made a contract with a consultant office for design, and they both disagreed, in addition to problems in the project management and administrative as well as financial problems. In meetings we usually meet with top management but in his case he did not intend to meet with us and instead he sent unqualified people who have no authority. We did not see any cooperation from his side and he was insisting to continue the project and he never thought that the company would withdraw the project, once we stopped the bank guarantee he knew that it is serious and started to meet with us.”

After the project was withdrawn, the project has to be put up once again for bidding but with a limited number of contractors:

“So withdrawal has complex procedures, we withdrew the project from this contractor because we found that giving in to another contractor will not work as the prices were too high compared to the prices of three years before when the project initially started. The system requires us to look for contractors that took part in the initial bidding and try to make a deal with each one to check if any is willing to take over the project with the same original price, but they all apologized, so we ask them to present new closed prices with determining the minimum price. So the project went back for the bidding competition but confined to the contractors who initially bid for the same project.”

“They were five contractors, two apologized and three submitted new prices, we negotiated the price and told them that the contractor who withdrew would bear the price difference. The initial bidding price was SAR121 million, when the contractors provided their new prices the minimum price quoted was SAR140 million, i.e. a difference SAR19 million to be borne by the failed contractor. We pressed on the new contractor to lower his price but he said that it was impossible to go below SAR139 million, so he won the bid and sent the documents to the management and got the approval. As the withdrawal

contractor might not pay the difference in cash, the Ministry of Finance would deduct the amount from the revenues of his other projects.”

The problems that any contractor faces when his project is withdrawn from a public company might lead him to declare bankruptcy:

“Truly the contractor whose project is withdrawn faces difficult times. The first thing his bank guarantee is cancelled from all banks that deal with him. If the bank guarantee is cancelled it means that he will not be able to bid on any governmental project because no bank will finance him. He has to pay the price difference, which is SAR19 million. He cannot bid on any new governmental projects for at least a year. Withdrawing the project breaks the contractor’s back but we reached a path where this was the only solution.”

Payments made to the failed contractor

“The contractor received the first payment in exchange of a bank guarantee; it is like he received nothing. Any contractor bidding for the project receives a 10% return in exchange of a bank guarantee so if he disappeared we have the bank guarantee and can regain it back. He took the value of the business he carried out, which was very simple up to 2.5%. The building was simple he doesn’t have to provide any services or equipment only construct the building according to our qualifications. The time we took was nine months to withdraw the project from the contractor, but we don’t have any concern with his labour or any problems he faced, as a public company when we have withdrawn the project it needs to be closed, that is the most important thing. Any equipment found in the construction area he has no right to remove it because it is considered the property of the company till a new contractor wins the project bidding we then look at the cars, equipment, and offices on the site according to the system.”

Calculation of the cost of the project

“We produce a table that details the amounts involved: what is the building to be constructed, how many doors and windows, how much wood to be used, we look at the market prices, then we calculate the cost of the building. We determine the price and cost of the building but it is confidential and closed, when contractors submit their bidding prices we look at their prices, any which is more than 35% than ours is ruled out.”

Does anyone endorse or favour a particular contractor?

“No one can recommend a specific contractor because the project that is put for bidding has to be declared in newspapers. Applicants need to be classified according to the classification of the Ministry of Municipal and Rural Affairs, each contractor has a specified category: if first class he is not limited, and a second class will have a higher limit for projects to enter. There is a specific time set when the bidders’ envelopes are opened and the minimum price will win the bid. We cannot change the winning bid, only

in specific cases: if the minimum price provider is over loaded or if it has stalled projects or projects the company withdrew from. If there is no legal document for the exclusion of a contractor from the bidding process, you cannot exclude them.”

“Every time a contractor completes some work he submits reports, that are reviewed and approved by a consultant and must conform to the pre-agreed specifications. From the beginning of the competition, a compact disk is given to contractors which contain the materials required and the criteria for such material, as he can only provide better than the existing, also he is given the overall and specific conditions.”

“The loss that we face is the loss of time and not direct financial loss but time costs money. Instead of being able to utilize the building as planned it is delayed. The company’s consultant and the contractor have a weekly meeting to follow up the work.”

Did you have a project where you started and then you quit?

“Yes we have a project like that, renovation of an old building. When the contractors worked and disassembled the surfaces for redoing them, it appeared later that the damage could not be located, the damage wasn’t apparent in the plan for maintenance. So we quit the project because it became not feasible for both parties, and the contractor was compensated for the work done.”

“We have a project to develop a building, for which the Ministry of Finance allocated a certain amount of money to develop but contractors’ bids were much higher. We asked the Ministry of Finance to increase the allocated portion and so far the project has not gone ahead as we are still waiting for the extra funds to be allocated.”

“We have a drawn plan arranged by project management, it includes all the projects needed by the organisation, which is in agreement with the top management on priorities in implementation of projects and then sent to the Ministry of Finance that determine what projects to be implemented, I can suggest forty projects and only twenty get the approval. The decision to construct a building is not individual or related to a certain department, but it is a joint decision of more than one department. Even the control over projects is not done individually, but is done by team work, and so are the decisions of awarding projects and the withdrawing where top management as well as the Ministry participating in.”

### **8.4.3 Case Analysis**

The de-escalation decision in this case, as one of the public sector organisations, differs from the previous two in many ways. The means of initiating the project: *“the project that is put for bidding has to be declared in newspapers”*; the monitoring system: *“we have a*

*strong monitoring system and an advisory that checks things out..... Every time a contractor completes some work he submits abstracts, that are reviewed and approved by a consultant and must conform to the company's conditions"; projects are further checked by external parties: "the office of Grievances....the Ministry of Municipal and Rural Affairs", and projects are not selected only upon necessity: "the Ministry of Finance that determine what projects are to be implemented."*

Another important feature that differs from the de-escalation decision in the company from the two earlier cases is the concept of withdrawal itself, as it was not about quitting or putting the project on hold or redirecting it *"so the project went back for the bidding competition"*, but it was stopping and replacing the current contractor *"we withdraw the project from this contractor"*, and the company continued constructing the building with the same qualifications but with a different contractor *"the new contractor..... Won the bid and sent the documents to the management and got the approval."*

Several determinants influenced the company's de-escalation decision (see Table 8.4), which took place after three years of initiating the project. These determinants have similarities with those reported in a number of case-based studies (see Chapters Three and Four) such as Ross and Staw (1986, 1993), Lipshitz (1995), and Newman and Sabherwal (1996), and Winch (2013). In the current case, contextual (non-project-specific) determinants are considered as *approach* attributes, while project-specific (financial, strategic and informational) determinants and non-project-specific (psychological and contextual) determinants are considered as *avoid* attributes.



**Table 8.4: Approach-Avoidance Attributes in Case Study Three**

<i>Determinants</i>	<i>Approach</i>	<i>Avoid</i>
Psychological		Project is a failure and cannot be turned around.
Contextual	Political (government procedures)	Project and its goals were publicly announced, project is a key project in the manager's portfolio, Political (government procedures).
Financial		Availability of the project's costs.
Strategic		Systematic continuous monitoring, efficacy of resources utilization
Informational		Information is publicly available, credibility of the information source

In more detail, non-project-specific in terms of contextual determinants were considered as an *approach* force, that made the company continue the project for three years: “*we continued according to the governmental procedures and we gave him warnings according to the system*”, while other contextual determinants were considered as *avoid* attributes in terms of: “*the project that is put for bidding has to be declared in newspapers.....the contractor whose project is withdrawn faces difficult times.....He went and complained to the office of Grievances and other committees.*” Political support was considered in previous studies as an influence for both escalation/de-escalation decisions (e.g., Ross and Staw, 1993; Winch, 2013).

More non-project-specific determinants were considered as *avoid* attributes such as the psychological influence: “*we found that....there is no hope that things will get better....he did not intend to meet with us and instead he sent unqualified people who have no authority.....We did not see any cooperation from his side.....he was insisting to continue the project and he never thought that the company would withdraw the project.*” In addition to project-specific determinants in terms of financial effects: “*the loss of time and not direct financial loss but time costs money....Instead of utilizing the building at a*

*certain time it is delayed.... the entire market prices rose...it took nine months in order to withdraw the project and take the approval of the competent authorities.....the difference is 19 million borne by the contractor.” Strategic and informational pressures such as: “his performance and progress were very slow..... Over 30 months his weak performance didn’t exceed 2% of the project.....The contractor gave us a time schedule.....We had a weekly report from our consultant which says how much the contractor completed.”*

In the literature (see Chapter Four), there is some evidence for the influence of these determinants on managers’ choices. For example, Pan et al. (2009) in a UK-based case study found that a project being closer to completion was an approach for escalation while the detection of serious deficiency within the project was an avoidance of escalation of commitment. Therefore, it can be said that the current study’s results are consistent with the proximity to the goal and the deficiency results, whereas when the project is far from completion (2% in the current case) and has critical deficiencies (weak performance), managers would consider de-escalation of commitment.

## **8.5 Summary and Conclusion**

The chapter has extended the analyses in Chapters 6 and 7 through valuable information gleaned from interviews conducted with senior managers in three large organisations in the manufacturing, services and construction industrial sectors in Saudi Arabia. The three cases not only substantiated the questionnaire survey findings but also highlighted new avenues for the study of the (de)-escalation phenomenon.

The three cases seemingly started as successful investment opportunities that eventually became problem cases that typify (de)-escalation of commitment. Most of the literature limits the concept of de-escalation to either redirecting or withdrawing an investment opportunity. In this research it was found that de-escalation includes more than that. For example in the case two, the project was redirected but still the investment opportunity has been put on hold until the company is capable of carrying out such a project, while in case three the project was completed using a different contractor. Consistent with the survey results, it is also evident from each case that de-escalation decisions in Saudi companies are influenced by a multitude of project specific and non-project specific factors. Finally, the interviews also showed that all cases depended on project audit either through continuous monitoring or reports that reflected the project's performance to achieve its goals.

The next chapter draws together all of the study findings, stating its main contributions, limitations and opportunities for future research.

## Chapter Nine

### Conclusions

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#### 9.1 Introduction

The current study has presented a detailed and comprehensive account of managers' project escalation/de-escalation decisions in Saudi Arabia, an economy in which limited prior management accounting research has occurred. This study has applied the approach-avoidance theory to investigate both the resistance as well as forces (items) that endorse and influence managers' decisions to continue or withdraw a failing course of action. Without a doubt, in the light of an extensive review of relevant literature, this study can be considered a pioneer in conducting a large questionnaire survey in Saudi Arabian companies, that investigated a detailed set of 52 pertinent study variable), grouped under two sets of determinants (project-specific and non-project specific), in order to capture all the relevant and critical aspects of this complex, sensitive and data-deficient field of study.

As stated in Chapter One, the main aim of this research was to provide, through the lens of the approach-avoidance theory, a better understanding of managers' escalation/de-escalation decisions in the Saudi corporate culture and the determinants influencing their decisions. Accordingly, this study was set four specific objectives:

- 1) Examine the impact of project-specific determinants on managers' decisions to escalate/de-escalate commitment.
- 2) Examine the psychological dimension in capital project (de)escalation of commitment decisions.

- 3) Examine the extent to which contextual and organizational factors influence capital project (de)escalation of commitment decisions.
- 4) Examine the moderating role that operational audit might have on project (de)escalation of commitment decisions.

In an attempt to meet the above objectives, the socio-cultural-economic features of the Saudi Arabian business environment were presented first in Chapter Two to put the study within a well-defined context. As with any study of this magnitude and importance, an extensive search, filtering and review of literature on capital project and escalation of commitment decisions (Chapters Three and Four) took place throughout the course of the study, particularly in its early stages to pave the way for variable identification and theoretical model specification and research design, as well as comparative analysis and discussion of results in the later stages. In particular, the theoretical literature helped in the initial identification and definition of the determinants that influence the occurrence as well as the continuing of the escalation/de-escalation phenomenon. This was followed by a thorough review of empirical studies available, whether laboratory-based or those that reported real company experience, to give more (practical) insights into the escalation of commitment phenomenon.

As was shown in Chapter Five, in the design of the research two-level theoretical model, the determinants have been divided into six categories (financial, strategic, informational, psychological, contextual, and organizational), with each category consisting of several items. The theoretical model accounted for the possible role of a third variable, namely operational project audit, on the first level relationship between the determinants and (de)-escalation decision. To examine these two levels of relationship as defined by the study's

objectives, questions and hypotheses, an elaborate questionnaire survey was painstakingly developed and administered to collect the main study's primary data from a large sample of companies based in the port city of Jeddah. The relatively high survey response rate achieved attests to the success of this study's design and execution not only on a difficult to research and data-starved topic but also by being able to achieve this in a largely untapped corporate environment that is usually perceived as very sheltered and inaccessible. This initial and very significant success was augmented by securing more primary data through interviews. In addition to the wealth of quantitative data obtained from the questionnaire survey, interviews were granted by three of the survey participants, making it possible to get more insights into the escalation of commitment decisions through the analysis of qualitative data. All the data collected were analysed using appropriate techniques whether at the descriptive or inferential stages and the results of the extensive analyses, discussions and interpretation in the light of relevant literature were presented in Chapters Six, Seven and Eight.

In the remainder of this chapter, a summary and discussion of the major findings that have emerged from the descriptive statistics, multinomial logistic regression analysis, analysis of moderator effect, and the interviews conducted are given. This is followed by the major implications of this research for both academic knowledge and project management practice. The final section outlines the limitations of this research, and offers recommendations for future research.

## **9.2 Summary and Discussion of Research Findings**

This section highlights the outcomes of this research that have emerged from the data analyses and discussions in Chapters Six, Seven and Eight. These outcomes are discussed in the context of relevant literature that was reviewed in Chapters Three and Four and how they relate to the study's research objectives.

### **9.2.1 Findings of Descriptive Statistics**

The aim of applying descriptive statistics was to examine the survey data that was collected from 274 Saudi companies in Jeddah City. The results of the descriptive statistics are summarised here in terms of the research objectives as well as the approach-avoidance theory.

#### **9.2.1.1. Project-Specific Determinants**

Regarding the **first objective** of this research, which is to examine the impact of financial, strategic and informational (project-specific) determinants on managers' decisions to escalate/de-escalate commitment, the results of the descriptive analysis have shown that all project-specific determinants received high levels of approval on the 5-point Likert scales, as most of the respondents agreed/totally agreed that the listed items had an impact on their escalation/de-escalation decisions.

##### **1. Financial Determinants**

When Saudi managers were provided with 10 financial items, the majority indicated that most of those items would act as an *avoidance* of escalation of commitment, and only

three items were considered as an *approach* for escalation of commitment, i.e., an *approach* for escalation (see Table 9.1).

**Table 9.1: Approach-Avoidance Attributes for Financial Determinants**

<i>Financial Determinants</i>	<i>M</i>	<i>Approach</i>	<i>Avoidance</i>
The withdrawal costs at a later date are much higher	4.003		√
The availability of a more financially attractive investment opportunity	3.970		√
The financial information clearly reflected the success and failure of the project	3.901		√
The availability of the project's costs	3.806		√
The availability of the project estimated revenues	3.799		√
The availability of a limit for extending the estimated budget	3.784		√
The limit for extending the estimated budget was publicly announced	3.113		√
The salvage value of the project is ignored	2.127	√	
The extra funds required could not be raised in time to save the project	2.083	√	
The decision maker realized sunk costs	2.025	√	

## 2. Strategic Determinants

From a strategic point of view according to the respondents, out of seven items, three were valued as an *avoidance* of escalation, while four were considered as an *approach* for escalation of commitment decisions (see Table 9.2).

**Table 9.2: Approach-Avoidance Attributes for Strategic Determinants**

<i>Strategic Determinants</i>	<i>M</i>	<i>Approach</i>	<i>Avoidance</i>
The efficacy of resources utilization	4.094		√
The systematic continuous monitoring of managers' actions	3.974		√
The flexibility to restructure the project	3.715		√
The low frequency of project progress reporting	2.343	√	
The low level of project risk	2.211	√	
The low degree of project completion	2.102	√	
The availability of a less strategically attractive investment opportunity	1.952	√	



### 3. Informational Determinants

Regarding informational determinants, out of five items, three were considered as an *avoidance* of Saudi managers' escalation decisions, while two items were considered as an *approach* for their decision to escalate commitment (see Table 9.3).

**Table 9.3: Approach-Avoidance Attributes for Informational Determinants**

<i>Informational Determinants</i>	<i>M</i>	<i>Approach</i>	<i>Avoidance</i>
The credibility of the information source	4.069		√
The timing of the information is helpful for the decision maker	4.065		√
The information is publicly available	3.693		√
The information is biased	2.405	√	
The information about the failing project is ambiguous	1.773	√	

#### 9.2.1.2 Non-Project-Specific Determinants

The influence of non-project-specific (psychological, contextual, organizational) determinants coincides with the second and third objectives of this research. The results of the descriptive analysis have shown that all non-project-specific determinants received high approval views, whereas most respondents agreed/totally agreed that the listed items had an impact on their escalation/de-escalation decisions as follows.

#### 1. Psychological Determinants

The psychological determinants' influence was led with the **second objective** of this research, which examines the psychological dimension on capital project (de)escalation of commitment decisions. The results of the descriptive analysis have shown that seven out of twelve items were considered as de-escalation attributes (see Table 9.4) while the remaining five items were considered as escalation forces.

**Table 9.4: Approach-Avoidance Attributes for Psychological Determinants**

<i>Psychological Determinants</i>	<i>M</i>	<i>Approach</i>	<i>Avoidance</i>
Project initiated by a group	3.733		√
Manager has less tolerance for failure	3.722		√
Manager given the opportunity to state his low self esteem	3.715		√
Manager was already committed to a mental budget	3.627		√
Manager believes that project is a failure and cannot be turned around	3.580		√
Manager was allowed to bring to mind his high level of self esteem	3.503		√
Manager experience of guilt and regret about the project's failure	3.302		√
Manager has personal gains	2.613	√	
Manager was initially responsible for initiating the project	2.609	√	
The desire to justify a previous decision	2.485	√	
Manager desire for self-efficiency	2.335	√	
Manager experience job insecurity	2.292	√	

## 2. Contextual Determinants

With regard to the **third objective**, which aimed to examine contextual determinants' influence on capital project (de)escalation of commitment decisions, the results of the descriptive analysis have shown that most contextual determinants have an impact on Saudi managers' escalation/de-escalation decisions (see Table 9.5).

**Table 9.5: Approach-Avoidance Attributes for Contextual Determinants**

<i>Contextual Determinants</i>	<i>M</i>	<i>Approach</i>	<i>Avoidance</i>
Political interference to discontinue the project	3.813		√
Manager educational background	3.806		√
Manager continuing a failing project would degrade his masculinity	3.733		√
Manager is politically supported to discontinue the project	3.700		√
Project and its goals were publicly announced	3.678		√
Manager is socially motivated to discontinue the project	3.656		√
Manager is rewarded for decision process rather than decision outcome	3.540		√
Effort the manager has put in the project is noticeable	2.540	√	
Existence norms of modeling	2.423	√	
Manager is externally justifying others	2.405	√	
Manager is saving his reputation	2.361	√	
Project is a key project in the manager's portfolio	2.357	√	
Manager cultural background	2.277	√	
Manager is respected for his previous history of managing projects	2.208	√	

Seven out of fourteen contextual items were considered as *avoidance* attributes for escalation, while the other seven were considered as *approach* attributes for escalation.

### 3. Organisational Determinants

Organisational determinants' influence was covered in the **third objective** as well, which aimed to examine the effect of organisational determinants on capital project (de)escalation of commitment decisions. The results of the descriptive analysis have shown that half of the organisational determinants were approach attributes (see Table 9.6), while the other half were avoidance attributes of Saudi managers' escalation decisions.

**Table 9.6: Approach-Avoidance Attributes for Organisational Determinants**

<i>Organisational Determinants</i>	<i>M</i>	<i>Approach</i>	<i>Avoidance</i>
The project was technically irretrievable	3.598		√
Low investment in other technical side-bets of project	3.507		√
The linkage of project to organisation's strategic existence is significant	2.438	√	
Saving the organisation reputation	1.835	√	

#### 9.2.1.3 Project Auditing Role

The **fourth objective** of this research aimed to examine the moderating role that operational audit might have on project (de)escalation of commitment decisions. The descriptive results, show that operational project audit has moderated this influence in two contradictory trends (see Table 9.7), where on the one hand it minimized the influence of psychological determinants and contextual determinants (except for political items), while on the other hand it maximized the influence of the organisational, financial, strategic and informational determinants.

**Table 9.7: Approach-Avoidance Attributes for Project Audit Influence**

<i>De-escalation Determinants</i>	<i>M</i>	<i>Approach</i>	<i>Avoidance</i>
Financial determinants	4.580		√
Informational determinants	4.434		√
Organisational determinants	4.098		√
Strategic determinants	4.094		√
Contextual determinants in terms of political effects	3.054		√
Psychological determinants	2.788	√	
Contextual determinants in terms of social effects	2.678	√	
Contextual determinants in terms of cultural effects	2.562	√	

## 9.2.2 Results of Hypotheses Testing

In agreement with achieving the stated objectives of this research, and to further confirm results of descriptive statistics, more sophisticated statistical techniques were applied in order to measure the significance of descriptive outcomes as well as to confirm suggested hypotheses with regard to approach-avoidance propositions. The results will be reviewed by grouping them into two subsections: the first describes the direct relationship between each of the selected determinants and Saudi managers' escalation/de-escalation decisions, and the second subsection presents the moderating role of operational project audit in the relationship between escalation/de-escalation determinants and managers' decisions in Saudi companies.

### 9.2.2.1 Results of Direct Interactions

Results of the direct interactions refer to the influence of escalation/de-escalation determinants on managers' decisions in Saudi Arabia that were indicated through suggested hypotheses. To examine the significant of this relationship, taking into consideration the type of the data to be analysed as the dependent variable is not continuous (dichotomous), Multinomial Logistic Regression (MLR) test is applied. The

results that are summarized in Table 9.8 show that project-specific/non-specific determinants (financial, strategic, informational, contextual, and organizational) have a collective significant influence on Saudi managers' choices, where the  $p$  value is less than .05, except for psychological determinants, which did not have a significant effect ( $p > .05$ ).

Therefore, all five hypotheses ( $H1$ ,  $H2$ ,  $H3$ ,  $H5$ , and  $H6$ ) were accepted regarding the influence of related determinants, which is in agreement with the results of the previously stated descriptive statistics. Hypothesis ( $H4$ ) regarding the total psychological determinants was however rejected.

**Table 9.8: Results of Hypothesis Testing**

<i>Hypothesis</i>	<i>Sig.</i>	<i>Comment</i>
<b><i>Project-Specific Determinants</i></b>		
<i>H1</i> : Financial determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action	.024	Accepted
<i>H2</i> : Strategic determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action	.021	Accepted
<i>H3</i> : Informational determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action.	.002	Accepted
<b><i>Non-Project-Specific Determinants</i></b>		
<i>H4</i> : Psychological determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action	.220	Rejected*
<i>H5</i> : Contextual determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action	.013	Accepted
<i>H6</i> : Organisational determinants influence managers' decisions to escalate/de-escalate commitment to a failing course of action	.038	Accepted

\*Rejected for the absence of a statistically significant collective impact, but individually three psychological items had a significant influence.

The MLR test is based on several statistical assessments and tools, as stated in Chapter Seven, the valuation of the credibility of hypotheses extends to examining the significance of each item of the determinants (Likelihood Ratio Test) and testing the extent to which it will significantly contribute (Parameter Estimates) to the escalation/de-escalation decisions in Saudi companies. Thus, when applying these tests, several results occurred

that not only narrowed and condensed the descriptive analysis outcome, but gave more detail to the significant and type of influence (whether to escalate or de-escalate commitment) of each item on managers' choices.

Regarding project-specific determinants, five out of twenty-two items had a strong significant influence on managers' decisions (see Table 9.9). Both managers' escalation and de-escalation decisions were influenced by four items, yet the item "*information ambiguity*" influenced managers' escalation decisions only. While regarding non-project-specific determinants, nine out of thirty items have significantly influenced managers' decisions. Only one item "*desire to justify previous decision*" had an impact on managers' escalation and de-escalation decisions, while the additional eight items have either influenced managers' escalation or de-escalation decisions (see Table 9.9).

**Table 9.9: Approach-Avoidance Attributes for Significant Items**

<i>Significant Items</i>	<i>Approach</i>	<i>Avoidance</i>
<b>Project-Specific Determinants</b>		
<b>Financial determinants</b>		
Financial information clearly reflected success and failure of project	√	√
The withdrawal costs at a later date are much higher	√	√
<b>Strategic determinants</b>		
Low frequency of progress reporting	√	√
<b>Informational determinants</b>		
Ambiguous information	√	
Biased information	√	√
<b>Non-Project-Specific Determinants</b>		
<b>Psychological determinants</b>		
Desire to justify previous decision	√	√
Manager initial responsibility		√
Project initiated by a group	√	
<b>Contextual determinants</b>		
Project and its goals publicly announced	√	
Project is key project in manager's portfolio	√	
Manager rewarded for decision process rather than outcome	√	
Manager's educational background		√
Existence of norms of modeling		√
<b>Organisational determinants</b>		
Significant linkage of project to organisation's strategic existence	√	

This dual effect of four project-specific and one non-project-specific items on managers' decisions could be explained through the different respondents' work experience according to the years of work they spent in their jobs, different range of decision making authority, and their companies' sectors and sub-sectors (as explained in Chapter Six), in addition to the time proposition of the approach-avoidance theory and the type of the current study (comprehensive that included a large set of variables in the questionnaires survey).

The time element, as explained in Chapter Three, is one of the important propositions of the approach-avoidance theory. According to the time element, any variable could be seen as an approach or an avoid tendency (Brockner and Rubin, 1975). This was confirmed in studies that examined the escalation/de-escalation phenomenon within the approach-avoidance theory (i.e., Keil et al., 2000; Pan et al., 2009) and in other studies that found that managers' decisions varied within the time influence on managers' decisions (i.e., Keil, 1995; Ryan, 1995). In the current study, the time element was obvious through the results of the descriptive analysis, which indicated that respondents faced a failing project (see Table 6.15): one year ago (40.1%), two years ago (28.8%), three years ago (21.5%), and more than four years (9.4%).

In the existing literature, the two financial items "*the financial information clearly reflected the success and failure of the project*" and "*withdrawal costs are at a later date are much higher*" were considered as escalation forces when variables such as the political influence to continue the project (Drummond, 1994; Sabherwal et al., 2003; Winch,

2013), or the effect of sunk costs (Newman and Sabherwal, 1996; Kisfalvi, 2000), high withdrawal costs (Ross and Staw, 1993) existed. Alternatively they are considered as de-escalation attributes (Drummond, 1995; Boulding et al., 1997; Gosh, 1997; Zikmund-Fisher, 2004) when the financial information revealed high returns (Zikmund-Fisher, 2004), low withdrawal costs and high salvage value (Drummond, 1995) or low salvage value and low closing costs (Newman et al., 1996) existed.

The strategic item “*low frequency of progress reporting*” was considered as an escalation force (Gosh, 1997; Keil and Robey, 1999; McNamara et al., 2002) but when associated with the degree of project completion (Moon et al., 2003; Pan et al., 2006; Ting, 2011; Lee et al., 2012) or the availability of an alternative investment (Pan et al., 2006; Harvey and Victoravich, 2009; Fox et al., 2009) it was considered as a de-escalation attribute.

Finally, the informational item “*the information is biased*” was considered as a de-escalation force when manipulated with variables such as managers’ selective perception, where managers make the decision that favour his\her egocentric position in terms of his\her performance appraisal (Chakravorty, 2009), or with the culture effect (Harrison et al., 1999; Greer and Stephens, 2001; Salter et al., 2004; Gomez and Sanchez, 2013). Alternatively, “*the information is biased*” was considered an escalation force when variables such as personal responsibility (Staw, 1976; Caldwell and O’Reilly, 1981), high product innovativeness (Schmidt and Calantone, 2002), managers’ formed favourable opinions (Biyalogorsky et al., 2006), and high self-esteem (Sivanathan et al., 2007; Pan et al., 2009) were considered.



Regarding the single influence of each of the remaining eight items, it is found in the current study that three non-project-specific items “*manager initial responsibility*”, “*manager's educational background*”, and “*existence of norms of modelling*” influenced managers’ de-escalation decisions. The majority of existing empirical literature that examined initial responsibility found it an escalation force (i.e., Staw, 1976; Barton et al., 1989; Jeffery, 1992; Schultz and Cheng, 2002; Biyalogorsky et al., 2006; Slaughter and Greguras, 2008). Yet it was a de-escalation attribute when manipulated with variables such as the availability of an alternative investment (McCain, 1986; Keil et al., 1995; Schulz-Hardt et al., 2009), the frame or content of information provided (Barton et al., 1989; Brown and Solomon, 1993; Harrison and Harrell, 1995), or individuals given the opportunity to affirm their wounded ego (Sivanathan et al., 2007). The item “*manager's educational background*” was a de-escalation force in Conlon and Garlands’ (1998) study, as they reported that when the degree of the failing project completion was 90%, a percentage of 88.24 Chinese undergraduate students compared to 59.67% MBA students agreed to allocate an additional \$1 million. The “*existence of norms of modelling*” was according to Newman and Sabherwal (1996) an escalation force if models represented successful projects, otherwise it could be a de-escalation attribute.

It is found, in the current study, that the remaining six items have significantly influenced managers’ escalation decisions. The first is “*ambiguous information*”, which is an informational item that Mähring and Keil (2008) reorganised as an escalation force when manipulated with the absence of information clarity, which made managers focus on positive information and interpret negative information in a positive way which made

them committed to the project longer (Boulding et al., 1997), or when information framing existed (Gosh, 1997). The second is “*project initiated by a group*” a psychological item that was considered to significantly influence managers’ escalation decisions since there is no difference between group and individual decision making (Bazerman et al., 1984), or because the group of managers were provided with high ambiguous information (Brecher and Hantula, 2005).

The third, fourth, and fifth items were “*project and its goals are publicly announced*”, “*project is key project in manager's portfolio*”, and “*manager is rewarded for decision process rather than outcome*” contextual determinants that were considered to be escalation attributes (e.g., Newman et al., 1996; Pan et al., 2006; 2009). When managers were identified with the project they become more committed to it (Ross and Staw, 1993), and even if managers were rewarded for their behaviour, the existing of political factors influenced their escalation decisions (Drummond, 1995). The final item “*significant linkage of project to organisation's strategic existence*”, which is organisational, has induced managers’ escalation decisions, because large percentage of the company’s assets were tied to the project (Ross and Staw, 1993) or since the company’s future potential as a business was tied up with this project (Kisfalvi, 2000).

#### **9.2.2.2 Results of the Moderating Role of Project Operational Audit**

Results of the intervening influence refer to examining hypothesis (*H7*), which indicated that “*operational auditing plays a moderating role with respect to the determinants involved in the escalation/de-escalation decisions*”. Because of the nature of the data, as

mentioned in Chapter Seven, the moderation assumption was examined through first applying the MLR test for the mean of the escalation/de-escalation determinants followed by running the MODPROBE Macro test.

Results of examining the mean of the escalation/de-escalation determinants suggested the existence of a significant influence of each of the project-specific/non-specific determinants on managers' escalation/de-escalation of commitment decisions, which paved the way for examining the moderation effect. For the moderation interaction, seven items of operational project audit were interacted (use of project audit, project audit in the evaluation stage, quality of project audit process, assessment of audit reports, response of project manager to audit reports, project audit steps, and all project audit items) with each of the six independent variables (separately and collectively).

The interaction results showed two levels of moderation influence, which confirms hypothesis *H7*. The first is the interaction effect of the “*use of project audit*”, “*project audit in the evaluation stage*”, “*all project audit items*”, and “*assessment of project audit reports*” on the influence of (de)-escalation, contextual and psychological determinants on managers' choices. The second is the value of moderation levels of project operational audit on the influence of financial, strategic, psychological and (de)escalation determinants on managers' decisions.

### **9.2.3 Findings of Interviews**

The aim of carrying out interviews was to follow-up the questionnaires' survey results and to get an in-depth understanding of the escalation/de-escalation determinants that influence Saudi managers' decisions in particular case studies. Three cases were presented that could be thought of as real life de-escalation prototype in manufacturing (food manufacturing company), services (car rental company), and constructing sub-businesses, where one case represented the public sector (constructing) and the other two were a part of the private sector companies in Saudi Arabia.

The three cases started as successful investment opportunities, managers escalated commitment for a period of time, and finally the commitment was de-escalated. In the food manufacturing case it took the company a period of 5-6 years of escalating resources to realize that the project should be stopped, in the car rental case the management escalated resources for one year only, and when constructing a building it took the management 3 years of time escalation before withdrawing the project from the constructing contractor.

An important result of conducting the interviews was that the concept of de-escalation in the three cases extended what the existing literature have limited either to redirecting or withdrawing an investment opportunity (see for example, Rubin and Brockner, 1975; Ross and Staw, 1986; Harrison and Harrell, 1993; Schmidt and Calantone, 2002; Pan et al., 2009). In the current research it was found that the de-escalation of commitment concept includes in addition to quitting the failing project (food manufacturing case), redirecting

the failing project while putting the investment opportunity on hold until the company is capable of carrying out such project (car rental case), or completing the failing project but through a different constructing company (constructing a building case).

**Table 9.10: Approach-Avoidance Attributes in Case Studies**

<b>Approach Attitudes</b>	<b>Cases studied*</b>		
	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>
Psychological determinants	Justifying an earlier decision, High self-esteem.		
Contextual determinants	Political issues, Justifying external parties, Noticeable effort, Norms of modeling.		Political (government procedures).
Organisational determinants	Company's image, No. of employees, The linkage of the project to strategic existence of company is significant, High investment in technical side-bets.		
Financial determinants	Sunk costs, The availability of the project's costs and revenues.	Availability of funds.	
Strategic determinants	Cover the market needs.	High demand for market.	
Informational determinants		Incredible information.	
<b>Avoidance Attitudes</b>	<b>Case 1</b>	<b>Case 2</b>	<b>Case 3</b>
Psychological determinants			Project is a failure and cannot be turned around.
Contextual determinants	Political issues.	Political interference to discontinue the project.	Project and its goals were publicly announced, Project is a key project in the manager's portfolio, Political (government procedures).
Organisational determinants	Company's image, Saving the company's reputation.		
Financial determinants	The availability of the project's costs and revenues, Withdrawal costs are significant, Extra funds required could not be raised in time to save the project, Profit is less than expected.	Availability of the project's costs, High maintenance costs, Redirecting costs less than keeping project.	Availability of the project's costs.
Strategic determinants	Efficacy of resources utilization, Frequency of project progress reporting, Consultation, Unattainable goals.	Low degree of project completion, Flexibility to restructure the project, Availability of alternative investments.	Systematic continuous monitoring, Efficacy of resources utilization.
Informational determinants			Information is publicly available, Credibility of the information source.

\*Case 1: food manufacturing, Case 2: vehicle rental, Case 3: constructor

Another important outcome of the interviews, which is in line with the results of the questionnaires survey, is that the decision to approach/avoid escalation was influenced by several determinants. Generally, all suggested groups of determinants were considered as approach/avoidance attitudes for the de-escalation decision in each of the three cases. There are however, differences with regard to the influence of individual items within each group of determinants as shown in Table 9.10 above.

### **9.3 Contributions to Knowledge and Implications for Practice**

In a modern business world characterised by globalised competitive markets and value chains, the size and complexity of capital projects are growing and, consequently, expose managers to more uncertainties that often drive them to make ill-informed decisions that become a strategic, financial and emotional burden. The burden is bigger if the investment is more of the irreversible type, for example a purpose-built factory. Faced with the inescapable and dilemmatic reality of a failing project, managers (or teams of them) often engage in what is perceived, in finance parlance at least, as irrational and suboptimal behaviour as they commit themselves, emotionally or otherwise, to investing more in failing projects instead of cutting their losses and terminating them early. In trying to study this phenomenon, this research has been able, through an extensive critical review of the literature and a rigorous study of current practice in a developing country, to make several significant contributions to the knowledge related to the (de)-escalation of commitment in capital project decisions as well as implications for capital project practitioners and academic researchers. These are summarised below.

### 9.3.1 Contributions to Knowledge

- Since Staw's (1976) ground-breaking "knee-deep in the muddy" article on escalation of commitment, various theories put forward to try to understand and explain this phenomenon have been subject to empirical experimentation. However, the knowledge value of most of the previous attempts has been severely limited by the dual impact of overly simplistic theoretical frameworks and reliance on either little real data or just laboratory generated data. Therefore by adopting a more inclusive research design, the current study has, to some extent, been able to overcome the conceptualisation and operationalisation deficiencies inherent in previous studies with regard to applying the approach-avoidance theory (Eder et al., 2013), and contributes to knowledge by
  - enabling a more informative use of the approach-avoidance theory, to try to understand the complex phenomenon that the escalation of commitment really is;
  - examining the effect on (de)-escalation decisions of a large range of drivers that underlie project-specific aspects (financial, strategic, informational) and non-project-specific aspects (psychological, contextual, organizational) and by demonstrating that the various (de)-escalation determinants have different impacts when viewed in isolation but are much more intertwined than previously depicted in the literature.
- Previous non laboratory-based studies have relied on limited evidence and only from companies in developed countries. The current study contributes to the literature not only by providing a richer picture of the (de)-escalation phenomenon but by also offering a fresh and different perspective from the emerging economy of Saudi Arabia and its hitherto untapped socio-economic characteristics in relation to how they shape managerial behaviour and the capital project decision process, particularly when faced with failing investment projects.

- Another notable contribution to knowledge made by this study comes from how it has been able to contextualise the escalation of commitment in terms of the (strategic) manner in which a capital investment project has been initiated (e.g. formal/informal) and demonstrate the role that intervening variables, in this case operational project audit, have in the escalation process and its many interwoven first-level determinants. In other words, knowing when a project started to become problematic (e.g. from the initiating phase) and identifying multi-level determinants is essential to understand and deal with escalation of commitment issues in capital project decisions.
- Another contribution that has transpired from this study's findings and which previous studies have not addressed is that, although traditional capital appraisal techniques, particularly NPV and IRR, play a deciding role in capital project selection, they fail to prevent neither the initial investment in what eventually becomes a failing project nor the additional investment through escalation of commitment. Therefore, as currently designed and taught in accounting and finance courses, these traditional textbook techniques maybe creating upfront knowledge boundaries that imperceptibly impact the level of decision rationality throughout the duration of a failed project. A contribution corollary therefore is that more dynamic and multi-attribute decision models that, for example, draw on the project escalation determinants modelled in the current study, are required to comprehend all critical dimensions of modern capital investment decisions.
- Contrary to the traditional belief held in a vast array of literature that setbacks in projects drive managers to exhibit what Klimerk (1997) called *retrospective* rationality for example, by attempting to recoup sunk costs, an important contribution of this study is to rethink how sunk costs are perceived in capital investment (escalation) decisions. In most cases in the current study (i.e. 208 companies), Saudi managers exhibit *prospective* rationality by opting to de-escalate or redirect failed projects, and sunk costs seem to be the least of their concerns. The prospective rationality is further evidenced for example with replacing managers of failed projects



- and looking for feasible alternative investments. On the other hand, the retrospective rationality associated with sunk costs is only found in the cases (i.e. 66 companies) where managers decided to escalate commitment and, even in those cases, sunk costs are not the only deciding factor to justify increased investment in a prior decision. In other words, there is little evidence in this study that Saudi project managers misuse the ‘sunk cost’ principle to rationalize previous ill-informed decisions, and consequently the alternative view (e.g. Baliga and Elly, 2011) that escalation is not necessarily an expression of the sunk cost fallacy merits further empirical verification.
- Finally, from a methodological perspective, this study contributes to the literature in the sense that it should encourage researchers interested in the escalation of project commitment to overcome the perennial inhibitors of topic complexity, sensitivity and data deficiency and venture out research projects that are both theoretically robust and solidly embedded in company practice. By overcoming the research inhibitors, this study has demonstrated that this risk-taking approach that tries to narrow the gap between theory and practice appeals to and finds resonance with practising managers even in traditionally conservative socio-cultural environments as evidenced by the large number of Saudi participants in this study’s comprehensive survey. In other words, adopting a simplistic approach that excludes critical aspects of a problem such as the escalation of project commitment to make the research more amenable achieves neither significant knowledge value nor practical relevance as it would likely trivialise the research and bring low (quality) response.

### **9.3.2 Implications for Capital Project Practitioners**

- Through its comprehensive coverage of what drives commitment escalation, this study’s practical relevance is reflected primarily by the wide corporate interest it has generated. The 274 Saudi managers who fervently took part in this study, including the three who offered deeper insights through unfettered interviews, undeterred by the complexity and sensitivity of the research topic and the socio-cultural constraints, did

so because the study addressed topical and pertinent issues they easily identified with, they wanted to learn more and share information about. In general, in itself the wide participation in the survey would have given pointers to managers, as was apparent during the interviews, towards effective capital budgeting and escalation countermeasures in their companies.

- The educational value of the study to capital project managers should not however stop at their participation in the study. They should build on this valuable experience and engage more with knowledge through further collaboration with state-of-the-art academic research and generating their own in-house research initiatives to help bridge the gap between theoretical prescriptions and practical needs in the vast and specialist field of capital investment and management. A starting point could be to have a closer look at the suitability of the capital appraisal techniques, particularly the DCF techniques of NPV and IRR that most companies currently use but do not seem to have helped prevent failure of projects they justified investing in nor the escalation of investment in the face of perceived failure. The unquestioned reliance on such techniques may be harbouring knowledge barriers that could be forcing project managers to act apparently irrationally by escalating failing projects they ought to terminate. The search for and use of alternative techniques, for example multi-attribute models that transcend cash flow estimates and time value of money to include non-financial aspects mapped onto the current study's model, may be the answer to the escalation riddle.
- The large number of reported cases of project managers having been demoted or sacked because of failed projects testifies to deeply seated and repetitive ill-fated project decisions that need a more methodical approach than just a change of personnel. Changing the personnel without challenging the systems and procedures within their organisational and cultural contexts may only result in an endless cycle of failures and personnel change, particularly as investments become bigger and more uncertain. Educational programmes about escalation of commitment and its

implications for companies and contingency plans to assist managers with failing projects are examples of more proactive steps that avoid the stigma of demotion and job loss and nurture entrepreneurship and creativity particularly when capital projects are strategically paramount. In this respect, companies might adapt this study's model to their own training needs by utilizing the suggested determinants in simulation exercises as well as when evaluating real problematic projects.

#### **9.4 Limitations and Implications for Future Research**

This research has achieved its aim and objectives and is, to the author's best knowledge, the most comprehensive primary data-based study of the escalation/de-escalation phenomenon in general and the first of its kind on Saudi companies. Nevertheless, like any other study of this type, it has limitations that need highlighting to benefit further research in this area.

This study's theoretical model is based on the approach-avoidance theory, which, although was chosen after a careful review of the literature and weighing up the pros and cons of the various theories available, it still has limitations and, therefore, cannot be expected to fully explain all aspects of the escalation of commitment phenomenon. Future research may consider combining this theory with other theories provided that such theoretical triangulation is properly supported methodologically for instance by using a mixed methods approach or a multi case studies approach.

The second limitation is related to the nature of the background literature on the study's research topic. Most of the existing empirical studies of the escalation of commitment drew conclusions from simulated decisions in laboratory settings and very few studies

have been based on real events in operating companies. This has limited the ability to compare the results of the current study like-for-like, especially the detailed findings from the survey questionnaire. Therefore, to overcome this limitation it is suggested that more field work of the type undertaken in the present study needs to be carried out provided researchers are prepared to take similar risks and bear the costs of such undertaking to secure sufficient input from target respondents.

The third limitation is that most of the respondents did not answer questions on some general and financial aspects such as the educational level of the project managers, job related information, company market share, profit levels, and monetary amount involved in the failing project. Had this information been provided by the respondents it would have enriched the descriptive analysis and the results therein. The reason for respondents not supplying this information, despite being guaranteed total confidentiality is the sensitivity involved given the socio-cultural environment. Therefore, future researchers may need to bear this in mind when designing data collection instruments.

The fourth limitation is, despite the significant participation in the questionnaire survey, only three companies allowed access for conducting in-depth interviews. Given the complex nature of the research topic and the fact that generalisation from cross-sectional data is only because of statistical significance, more creative effort is required at the research design stage to convince companies to collaborate more with this type of research project by facilitating detailed case analysis. A possible way for researchers to achieve this

is through action research, which may appeal to companies as a form of free consultancy service that would benefit their management of projects.

Finally, this study has relied on a selection of appropriate statistical tools particularly the multinomial logistic regression to analyse the data collected and the study findings are obviously dependent on how the data were analysed. The study has tried to uncover second level relationships by looking at the role of a moderator variable. It is possible that higher levels of analysis could have been achieved through further statistical exploration of the data analysis, for example, by introducing mediator variables and using more sophisticated techniques such as structural equations modelling.

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## Appendix (A): Survey Questionnaire (English Version)



### ***An Approach-Avoidance Examination of Corporate Project De-escalation Decisions in Saudi Companies***

#### **Dear Respected Company/ Project Manager:**

I am a faculty member in the Accounting department at King Abdul Aziz University, Jeddah, where my teaching and research interests are mainly in management accounting. I am currently enrolled on a doctoral program which is jointly supervised from the University of Huddersfield, UK.

My Ph.D. research project, as indicated by its title above, deals with topical issues in project management, particularly how managers make project de-escalation decisions. By de-escalation is meant stopping or withdrawing from a project that is perceived to be failing.

To my knowledge this is the first research project of its kind that will address these theoretically and practically important issues within the Saudi corporate context. As you may have valuable relevant experience that can greatly benefit this research project, I would therefore like to take this opportunity to seek your assistance in making this research project a success by completing the enclosed survey questionnaire. This should take no more than 20 minutes of your time and all the information you provide will be treated with total confidentiality.

Given the importance of this research project, I would like to be able to conduct interviews with some of the companies participating in this survey. The purpose of the interviews is to elaborate on issues that emerge from the survey that are of common interest for both research and practice. If you are willing to take part in such interviews, please provide contact details.

If you have any queries about this study, please do not hesitate to contact me either by email: [u0772042@hud.ac.uk](mailto:u0772042@hud.ac.uk) or Tel: .....

Yours sincerely,  
Mrs. Rawia Obaid

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## **Section One: General Information:**

<b>1) Please indicate the number of years you have been</b>					
▪ with the current company				.....years	
▪ a project manager				.....years	

<b>2) From the list below, please choose <u>one</u> item that best describes your current and previous position in your company indicating the number of years you have been in this position</b>		
<b>Job title</b>	<b>Current job</b>	<b>Previous job</b>
▪ Company general manager	.....years	.....years
▪ Finance manager	.....years	.....years
▪ Divisional manager	.....years	.....years
▪ Project manager	.....years	.....years
▪ Other ( <i>please specify</i> ) .....	.....years	.....years

<b>3) In relation to project management, please tick (<u>√</u>) <u>all</u> relevant items to indicate the scope of your job authority:</b>	
▪ Authorize new projects	
▪ Conduct audits on active projects	
▪ Make decisions about failing projects	
▪ Other ( <i>please specify</i> ) .....	

<b>4) Please tick (<u>√</u>) <u>only one</u> item below to indicate your company's ownership type:</b>			
▪ Corporation		▪ Limited partnership	
▪ General partnership		▪ Holding company	
▪ Sole proprietorship		▪ Semi government	
▪ Other ( <i>please specify</i> ) .....			

<b>5) Please tick (<u>√</u>) <u>only one</u> item below to indicate approximately how old your company is:</b>			
▪ Less than 5 years		▪ 5 - 10 years	
▪ 11- 15 years		▪ 16-20 years	
▪ 20-25 years		▪ More than 25 years	

<b>6) Please tick (<u>√</u>) <u>all</u> items below to indicate the approximate size of your company in terms of:</b>	
▪ Total capital amount:	.....S.R.
▪ Current market value:	.....S.R.
▪ Annual sales turnover:	.....S.R.
▪ Total number of employees:	.....Employees

<b>7) Please tick (<u>√</u>) <u>only one</u> item below that best describes your company's main business</b>					
▪ Industrial		▪ Commercial		▪ Services	

8) Please choose <u>all</u> relevant items below to indicate approximately how much each contributes, in percentage terms, to your company's annual sales turnover	
<b>Sub Sector</b> (according to the <i>Tadawul</i> classification)	<b>% Contribution to Turnover</b>
▪ Agriculture & Food Industries	.....%
▪ Banks & Financial Services	.....%
▪ Building & Construction	.....%
▪ Cement	.....%
▪ Energy & Utilities	.....%
▪ Hotel & Tourism	.....%
▪ Industrial Investment	.....%
▪ Insurance	.....%
▪ Media & Publishing	.....%
▪ Multi Investment	.....%
▪ Petrochemical Industries	.....%
▪ Real Estate Development	.....%
▪ Retail	.....%
▪ Telecommunication & Information Technology	.....%
▪ Transport	.....%
▪ Other (please specify) .....	.....%
Total	100%

9) Please tick (✓) <u>only one</u> item below to indicate how long your company has been operating in the <u>highest contributing sub-sector</u> to sales turnover you have identified in question 8 above:			
▪ Less than 5 years		▪ 5 - 10 years	
▪ 11- 15 years		▪ 16-20 years	
▪ More than 20 years			

## **Section Two: Description of the Capital Investment Process**

10) Please tick (✓) <u>one</u> of the two items below to indicate how capital investment decisions are made in your company?		
▪ By following a mostly <u>formal</u> capital investment decision process		(now please answer questions 11-16)
▪ By following a mostly <u>informal</u> capital investment process		(now please answer questions 17-21)

If the capital investment process in your company is mostly formal please answer questions 11-16 below then go to question 22.

11) Using the 5-point scale below, please <u>rank</u> the following items in terms of their importance to a project's identification stage in your company (1 = not important at all, 5 = very important)					
Project identification stage:	Not important at all			Very important	
	1	2	3	4	5
▪ Source of Idea Origination					
▪ Reasons for Idea Origination					
▪ Process and Submission of Origination					
▪ Time Pattern of Origination					
▪ Other (please specify).....					

12) Using the 5-point scale below, please **rank** the following items in terms of their importance to a project's development stage in your company (1 = not important at all, 5 = very important)

Project development stage:	Not important at all			Very important	
	1	2	3	4	5
▪ Extent of Project screening					
▪ Screening process					
▪ Forecasting and estimates					
▪ Personal responsibility for the project					
▪ Other (please specify).....					

13) Using the 5-point scale below, please **rank** the following items in terms of their importance to a project's selection and implementation stage in your company (1 = not important at all, 5 = very important)

Project selection and implementation stage:	Not important at all			Very important	
	1	2	3	4	5
▪ Strategic importance of the project					
▪ Size of the project					
▪ Personal responsibility for analysis					
▪ Determining project appraisal techniques					
▪ Risk assessment					
▪ Capital rationing process					
▪ Knowledge of the appropriate cost of capital					
▪ Project approval					
▪ Project implementation					
▪ Other (please specify).....					

14) Please tick(✓) all relevant items to indicate which of the following capital investment appraisal techniques are used in your company

▪ NPV (net present value)		▪ ROI (return on investment)	
▪ IRR (internal rate of return)		▪ ARR (accounting rate of return)	
▪ Payback method		▪ Other (please specify).....	
▪ Non-financial techniques (please specify) .....			

15) Using the 5-point scale below, please **rank** the following items in terms of their importance to a project's evaluation stage in your company (1 = not important at all, 5 = very important)

Project evaluation stage:	Not important at all			Very important	
	1	2	3	4	5
▪ The clarity of roles in project evaluation					
▪ The use of project audit					
▪ The quality of the project audit process					
▪ The assessment of audit reports					
▪ The response of the project manager to audit report					
▪ The effective use of team-based performance measures					
▪ The effective use of performance incentives					
▪ Other (please specify).....					

<b>16) Using the 5-point scale below, please <u>rank</u> the following steps in terms of their importance to a project's auditing process in your company (1 = not important at all, 5 = very important)</b>					
<b>Project auditing:</b>	Not important at all			Very important	
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
▪ Step 1: agree to start the audit					
▪ Step 2: prepare an audit plan					
▪ Step 3: collect basic information					
▪ Step 4: emphasize essential factors					
▪ Step 5: consider risks involved of conducting audit					
▪ Step 6: outline audit profile					
▪ Step 7: gather more detailed information					
▪ Step 8: interpret information					
▪ Step 9: evaluate information					
▪ Step 10: record findings and recommendations					
▪ Step 11: write up and submit the audit report					

If the capital investment process in your company is mostly informal please answer questions 17-21 below then go to question 22.

<b>17) In the absence of a formal project investment process, the main reason for approving a capital investment project in your company is (please tick (✓) one item only):</b>	
▪ The strategic importance of the investment opportunity	
▪ The annual capital budgeting round	
▪ Other (please specify) .....	

<b>18) Please tick (✓) one item below to indicate who normally takes personal responsibility for the capital investment decision:</b>			
▪ Company general manager		▪ Finance manager	
▪ Divisional manager		▪ Project manager	
▪ Other (please specify) .....			

<b>19) Please tick (✓) all relevant items below to indicate if there is a follow-up to the capital investment project once it has been implemented:</b>	
▪ Continuous monitoring of the project	
▪ Evaluation of project teams	
▪ Post completion evaluation	
▪ Other (please specify) .....	

<b>20) Does project auditing play a role in the informal capital investment decision?</b>			
▪ Yes		▪ No	

<b>21) If yes, please tick (✓) all relevant items below to indicate whether such items are considered when applying project auditing in your company</b>	
▪ Monitor profitability	
▪ Monitor revenue	
▪ Other (please specify) .....	

### **Section Three: Project Evaluation and the De-escalation Decision**

**22) If the project was completed successfully (i.e., there was no perceived failure and no need to de-escalate it) how close was the final cost to the budget? (please tick (✓) one item only)**

▪ Final cost did not significantly differ from the set budget	
▪ Final cost did differ from the set budget	
▪ Final cost significantly exceeded the set budget	

**23) When evaluating existing projects in your company, what criteria do you normally apply to establish failure? (please tick (✓) all relevant items)**

▪ Project exceeded anticipated completion time	
▪ Project exceeded budget	
▪ Project did not meet initial strategic objectives	
▪ Project should not have been accepted in the first place	
▪ New regulations	
▪ Other (please specify) .....	

**24) Which of the following represents the most recent failing project you have been involved with?(please tick (✓) one item only)**

▪ Opening a new company branch	
▪ Renewing old capital assets	
▪ Buying new capital assets	
▪ Expanding capacity (for example: production, marketing or administration)	
▪ Other (please specify) .....	

**25) Please tick (✓) one item below to indicate when was the most recent failing project?**

▪ Last year		▪ Two years ago	
▪ Three years ago		▪ Four years ago	
▪ Five years ago		▪ Other (please specify) .....	

**26) Using the 5-point scale below, please indicate what initially motivated the investment into this project (1= not important at all, 5= very important):**

Investment motivation factors:	Not important at all					Very important	
	1	2	3	4	5		
▪ Company's strategic goals							
▪ Capital expenditure budget							
▪ Its social impact							
▪ Other (please specify) .....							

**27) What happened to the failing project? (please tick (✓) one item only)**

▪ More resources were added to it (i.e. project was escalated)	
▪ The project was terminated (i.e. project was de-escalated)	
▪ The project was redirected (i.e. project was de-escalated)	

<b>28) Please indicate approximately:</b>	
▪ How much did the project cost by the time it irretrievably failed	.....S.R.
▪ How much does this represent from the original budget in percentage terms	.....%

<b>29) What additional costs did the de-escalation of the failing project incur? (please tick (✓) all relevant items):</b>	
▪ Contractual penalties with suppliers	.....S.R.
▪ Contractual penalties with customers	.....S.R.
▪ Redundancy payments	.....S.R.
▪ Governmental penalties	.....S.R.
▪ Insurance costs	.....S.R.
▪ Joint-venture costs	.....S.R.
▪ Other (please specify) .....	.....S.R.

<b>30) What impact, if any, did the failure and de-escalation of the project have on the person directly responsible for the project management? (please tick(✓) the most applicable item):</b>	
▪ No impact at all	
▪ Person is no longer involved with project management	
▪ Person lost his job and left the company	
▪ Other (please specify) .....	

## **Section Four: Determinants of the De-Escalation Decision**

<b>31) From your experience dealing with failing projects, please indicate using the 5-point scale below, to what extent you agree or disagree that each of the following psychological items impacts the decision to de-escalate commitment to a failing project in your company (1= totally disagree, 3= unsure, 5=totally agree):</b>					
Psychological determinants	Totally Disagree	Unsure			Totally Agree
	1	2	3	4	5
▪ The desire to justify a previous decision					
▪ Manager was initially responsible for initiating the project					
▪ Manager experience of guilt and regret about the project's failure					
▪ Manager was allowed to bring to mind his high level of self esteem					
▪ Project initiated by a group					
▪ Manager given the opportunity to state his low self-esteem					
▪ Manager experience job insecurity					
▪ Manager desire for self-efficiency					
▪ Manager has less tolerance for failure					
▪ Manager has personal gains					
▪ Manager has already committed to a mental budget					
▪ Manager believes that the project is a failure and cannot be turned around					
▪ Other (please specify).....					

**32) From your experience dealing with failing projects, please indicate using the 5-point scale below, to what extent you agree or disagree that each of the following contextual items impacts the decision to de-escalate commitment to a failing project in your company (1= totally disagree, 3= unsure, 5=totally agree):**

Contextual determinants	Totally Disagree	Unsure			Totally Agree
	1	2	3	4	5
▪ Project and its goals were publicly announced					
▪ Project is a key project in the manager's portfolio					
▪ Effort the manager has put in the project is noticeable					
▪ Manager is rewarded for decision process rather than decision outcome					
▪ Manager is saving his reputation					
▪ Manager is socially motivated to discontinue the project					
▪ Manager is politically supported to discontinue the project					
▪ Manager is respected for his previous history of managing projects					
▪ Manager educational background ( <i>i.e. studied management, finance, economics...</i> )					
▪ Manager continuing a failing project would degrade his masculinity					
▪ Manager cultural background ( <i>i.e. customs, society ethics and morals.....</i> )					
▪ Manager is externally justifying others					
▪ Political interference to discontinue the project					
▪ Existence of norms of modeling					
▪ Other ( <i>please specify</i> ).....					

**33) From your experience dealing with failing projects, please indicate using the 5-point scale below, to what extent you agree or disagree that each of the following organizational items impacts the decision to de-escalate commitment to a failing project in your company (1= totally disagree, 3= unsure, 5=totally agree):**

Organizational determinants	Totally Disagree	Unsure			Totally Agree
	1	2	3	4	5
▪ The organization de-escalated the project as it was technically irretrievable					
▪ Saving the organization reputation					
▪ The linkage of project to organization's strategic existence is significant					
▪ Low investment in other technical side-bets of project ( <i>i.e. hiring people.....</i> )					
▪ Other ( <i>please specify</i> ).....					

**34) From your experience dealing with failing projects, please indicate using the 5-point scale below, to what extent you agree or disagree that each of the following financial items impacts the decision to de-escalate commitment to a failing project in your company (1= totally disagree, 3= unsure, 5=totally agree):**

Financial determinants	Totally Disagree	Unsure			Totally Agree
	1	2	3	4	5
▪ The availability of the project estimated revenues					
▪ The availability of the project's costs					
▪ The decision maker realized sunk costs					
▪ The financial information clearly reflected the success and failure of the project					
▪ The availability of a more financially attractive investment opportunity					
▪ The salvage value of the project is ignored					
▪ The withdrawal costs at a later date are much higher					
▪ The extra funds required could not be raised in time to save the project					
▪ The availability of a limit for extending the estimated budget					
▪ The limit for extending the estimated budget was publicly announced					
▪ Other ( <i>please specify</i> ).....					

35) From your experience dealing with failing projects, please indicate using the 5-point scale below, to what extent you agree or disagree that each of the following strategic items impacts the decision to de-escalate commitment to a failing project in your company (1= totally disagree, 3= unsure, 5=totally agree):

Strategic determinants	Totally Disagree	Unsure			Totally Agree
	1	2	3	4	5
▪ The efficacy of resources utilization					
▪ The availability of a less strategically attractive investment opportunity					
▪ The low degree of project completion					
▪ The systematic continuous monitoring of managers' actions					
▪ The low frequency of project progress reporting					
▪ The flexibility to restructure the project					
▪ The low level of project risk					
▪ Other (please specify).....					

36) From your experience dealing with failing project, please indicate using the 5-point scale below, to what extent you agree or disagree that each of the following informational items impacts the decision to de-escalate commitment to a failing project in your company (1= totally disagree, 3= unsure, 5=totally agree):

Informational determinants	Totally Disagree	Unsure			Totally Agree
	1	2	3	4	5
▪ The information about the failing project is ambiguous					
▪ The credibility of the information source					
▪ The information is biased					
▪ The information is publicly available					
▪ The timing of the information is helpful for the decision maker					
▪ Other (please specify).....					

37) Using the 5-point scale below, please rank the following determinants to indicate the degree to which applying ongoing audit in your company has limited their effect on the project's de-escalation decision in your company (1= not important at all, 5= very important):

Determinants	Not important at all			Very important	
	1	2	3	4	5
▪ Psychological determinants					
▪ Contextual determinants in terms of cultural effects					
▪ Contextual determinants in terms of social effects					
▪ Contextual determinants in terms of political effects					
▪ Financial determinants					
▪ Organizational determinants					
▪ Strategic determinants					
▪ Informational determinants					
▪ Other (please specify).....					



**Section Five** *(optional)*:

Company's name: .....

Your name: .....

Your age: .....years

Your gender:

Male ☐

Female ☐

Highest qualification:

Less than high school level ☐

High school level ☐

Bachelor degree ☐

Post graduate (*e.g., MSC, MBA, PhD...*) ☐

Professional qualification (*please specify*) ..... ☐

**Please indicate**

- **If you would like a copy of the summary report of this study's findings:**

Yes ☐

No ☐

- **If you would like to take part in a post-survey interview**

Yes ☐

No ☐

**If you have answered yes, to either or both questions above please give contact details below:**

Address:.....  
.....  
.....

Telephone number:

Fax number:

Email-address:

## Appendix (B): Survey Questionnaire (Arabic Version)



دراسة نظرية اتخاذ مدراء الشركات أو المشاريع الاستثمارية للقرار الاستثماري الصحيح المتعلق  
بنتائج الجدوى الاقتصادية وتطبيق ذلك على الشركات السعودية

السيد المحترم مدير الشركة/ المشاريع

أفيدكم أنني محاضرة في قسم المحاسبة في جامعة الملك عبد العزيز بجدة، حيث أن اهتماماتي التدريسية و البحثية  
تتركز أساسا في المحاسبة الإدارية. وحاليا أقوم بإكمال دراستي العليا وذلك ضمن برنامج الإشراف المشترك مع جامعة  
هدرزفيلد في بريطانيا، وذلك بإشراف المشرف الرئيسي د. مسعود محافظي  
قسم  
المحاسبة، كلية التجارة، جامعة هدزفيلد، المملكة المتحدة، هاتف: 1484-473071 (0044). و المشرف المحلي أ.د.  
عبد العال بن هاشم أبو خشبة، رئيس قسم المحاسبة، جامعة الملك عبد العزيز، جدة، email:  
abdulaal@hotmail.com، هاتف: .....

كما يتضح من العنوان الرئيسي في أعلى الصفحة، فإن موضوع البحث يتمركز حول كيفية اتخاذ مدراء الشركات أو  
المشاريع الاستثمارية قراراتهم المتعلقة بخفض أو رفع درجة الالتزام بقرار الانسحاب من المشروع الاستثماري في  
حالة عدم تأكيد نتائج الجدوى الاقتصادية ضرورة الانسحاب منه.

هذا بحث نظري و ميداني يتم تطبيقه في المملكة العربية السعودية، و حيث انه يوجد لديكم خبرة قيمة وذات علاقة  
وطيدة بموضوع البحث، فانا انتهز الفرصة لطلب مشاركتكم في إنجاح هذا البحث بالإجابة على أسئلة الاستبيان  
المرفق، علما أن إجاباتكم ستحاط بالسرية الكاملة.

نظرا لأهمية موضوع البحث، فانا أتطلع أيضا لأن أقوم بدراسة تفصيلية عن طريق إجراء مقابلات مع بعض الشركات  
التي ستشارك في هذا الاستبيان حيث أن الهدف من المقابلات هو التفسير العميق لبعض النقاط و المواضيع التي تتبع  
من هذا الاستبيان ذات الأهمية للباحثين أو متخذي القرارات في الشركات السعودية إذا لم يكن لديكم مانع من المشاركة  
في المقابلات الرجاء التكرم بإفادتي بذلك.

إذا كان هناك أي استفسارات لديكم بخصوص الأسئلة في الاستبيان أو عن البحث الرجاء عدم التردد في الاتصال عن  
طريق الايميل التالي: [u0772042@hud.ac.uk](mailto:u0772042@hud.ac.uk)

شاكرا لكم حسن تعاونكم

الباحثة

أ. راوية رضا عبيد

هاتف (مباشر): .....

## الجزء الأول: معلومات عامة

(1) الرجاء تحديد عدد سنوات عملكم	
مع الشركة الحالية	
كمدير مشروعات	

(2) من القائمة التالية، الرجاء اختيار <u>عنصرا واحدا</u> فقط والذي يعبر عن سنوات شغلكم لوظيفتكم الحالية أو وظيفتكم السابقة		
مسمى الوظيفة	سنوات شغلكم للوظيفة الحالية	سنوات شغلكم للوظيفة السابقة
المدير العام للشركة	سنة	سنة
المدير المالي	سنة	سنة
مدير القسم	سنة	سنة
مدير المشاريع	سنة	سنة
أخرى (الرجاء التوضيح).....	سنة	سنة

(3) الرجاء اختيار <u>العناصر</u> التي توضح مدى الصلاحيات المرتبطة بوظيفتكم بالنسبة لإدارة المشاريع في شركتكم:	
اتخاذ قرارات تتعلق بالبداية في مشروعات جديدة	
اتخاذ قرارات تتعلق بإخضاع المشروعات القائمة للمراجعة و الفحص	
اتخاذ قرارات تتعلق بتحديد مصير مشروعات تواجه الفشل	
أخرى (الرجاء التوضيح).....	

(4) الرجاء اختيار <u>عنصرا واحدا</u> فقط لتحديد نوع ملكية شركتكم:			
شركة مساهمة	شركة توصية بسيطة		
شركة تضامن	شركة قابضة		
مؤسسة فردية	شركة شبه حكومية		
أخرى (الرجاء التوضيح).....			

(5) الرجاء اختيار <u>عنصرا واحدا</u> فقط لتحديد عمر شركتكم في السوق السعودي تقريبا			
أقل من 5 سنوات	5-10 سنوات		
11-15 سنة	16-20 سنة		
20-25 سنة	أكثر من 25 سنة		

(6) الرجاء تحديد الحجم التقريبي لشركتكم من حيث:	
راس المال المصرح به	ريال سعودي
راس المال المتداول (قيمة أسهم الشركة في السوق)	ريال سعودي
حجم العائد على المبيعات السنوي	ريال سعودي
إجمالي عدد الموظفين	موظف

(7) الرجاء اختيار <u>عنصرا واحدا</u> فقط والذي يعبر عن القطاع الرئيسي الذي تنتمي إليه شركتكم:			
صناعي	تجاري	خدمي	

8) الرجاء اختيار كل العناصر التي تعبر عن قطاعات الاستثمار الجزئية التي تنتمي إليها شركتكم مع توضيح نسبة مساهمة كل قطاع من هذه الأنشطة في تحقيق العائد على المبيعات السنوي تقريبا

نسبة مساهمة كل قطاع	قطاعات الاستثمار (حسب تصنيف تداول)
%.....	■ الزراعة و الصناعات الغذائية
%.....	■ المصارف و الخدمات المالية
%.....	■ التشييد و البناء
%.....	■ الاسمنت
%.....	■ الطاقة و المرافق الخدمية
%.....	■ الفنادق و السياحة
%.....	■ الاستثمار الصناعي
%.....	■ التأمين
%.....	■ الإعلام و النشر
%.....	■ شركات الاستثمار المتعدد
%.....	■ الصناعات البتر و كيمياوية
%.....	■ التطوير العقاري
%.....	■ التجزئة
%.....	■ الاتصالات و تقنية المعلومات
%.....	■ النقل
%.....	■ أخرى (الرجاء التوضيح) .....

9) الرجاء اختيار عنصرا واحدا فقط لتحديد عدد السنوات التي مارست شركتكم نشاطها الاستثماري في القطاع الجزئي الأعلى مساهمة في تحقيق العائد على المبيعات السنوي و الذي سبق اختياره في السؤال السابق

■ أقل من 5 سنوات	■ 5-10 سنوات
■ 11-15 سنة	■ 16-20 سنة
■ 20-25 سنة	■ أكثر من 25 سنة

### الجزء الثاني: وصف إجراءات اتخاذ القرار الاستثماري (الرأسمالي)

(10) الرجاء اختيار <u>عنصرا واحدا</u> فقط لتحديد نوعية الإجراءات المتبعة لاتخاذ القرارات الاستثمارية في شركتكم		
■	باتّباع إجراءات رسمية على الأغلب	الرجاء الإجابة على الأسئلة من 11-16
■	باتّباع إجراءات غير رسمية على الأغلب	الرجاء الإجابة على الأسئلة من 17-21

إذا كانت الإجراءات المتبعة لاتخاذ قرار الاستثمار الرأسمالي في شركتكم هي إجراءات رسمية على الأغلب الرجاء الإجابة على الأسئلة من 11-16 ثم متابعة الإجابة على سؤال 22 وما يليه

11) الرجاء ترتيب العناصر التالية حسب أهميتها بالنسبة لمرحلة التعريف بالفكرة (الفرصة) الاستثمارية عند اتخاذ القرار الاستثماري في شركتكم (1= غير مهم على الإطلاق، 5= مهم جدا)

مرحلة التعريف بالفكرة (الفرصة) الاستثمارية					غير مهم على الإطلاق	مهم جدا			
					1	2	3	4	5
■ التحقق من مصدر الفكرة الاستثمارية									
■ التحقق من أسباب الفكرة الاستثمارية									
■ التحقق من إجراءات تقديم الفكرة الاستثمارية									
■ التحقق من الوقت المحدد للفكرة الاستثمارية									
■ أخرى (الرجاء التوضيح) .....									

12) الرجاء ترتيب العناصر التالية حسب أهميتها بالنسبة لمرحلة تطوير المشروع الاستثماري عند اتخاذ القرار الاستثماري في شركتكم (1= غير مهم على الإطلاق، 5= مهم جدا)					
مرحلة تطوير المشروع الاستثماري					غير مهم على الإطلاق
					مهم جدا
5	4	3	2	1	
					تحديد مدى فحص المشروع
					تحديد منهج فحص المشروع
					تحديد التنبؤات و التوقعات من المشروع
					تحديد المسؤولية الشخصية عن المشروع
					أخرى (الرجاء التوضيح) .....

13) الرجاء ترتيب العناصر التالية حسب أهميتها بالنسبة لمرحلة اختيار و تطبيق المشروع الاستثماري عند اتخاذ القرار الاستثماري في شركتكم (1= غير مهم على الإطلاق، 5= مهم جدا)					
مرحلة اختيار و تطبيق المشروع الاستثماري					غير مهم على الإطلاق
					مهم جدا
5	4	3	2	1	
					تحديد الأهمية الإستراتيجية للمشروع
					تحديد حجم المشروع
					تحديد المسؤولية الشخصية عن تحليل المشروع
					تحديد أساليب تثمين المشروع
					تقييم حجم المخاطرة
					تحديد مصادر تمويل المشروع
					تحديد أكثر الوسائل مناسبة لتمويل المشروع
					الموافقة على المشروع
					تطبيق المشروع
					أخرى (الرجاء التوضيح) .....

14) الرجاء اختيار كل العناصر ذات العلاقة بتثمين المشروع الاستثماري في شركتكم			
صافي القيمة المطلقة	العائد على الاستثمار		
معدل العائد الداخلي	معدل العائد المحاسبي		
فترة الاسترداد	أخرى (الرجاء التوضيح) .....		
أساليب غير كمية (الرجاء التوضيح) .....			

15) الرجاء ترتيب العناصر التالية حسب أهميتها بالنسبة لمرحلة تقييم المشروع الاستثماري عند اتخاذ القرار الاستثماري في شركتكم (1= غير مهم على الإطلاق، 5= مهم جدا)					
مرحلة تقييم المشروع الاستثماري					غير مهم على الإطلاق
					مهم جدا
5	4	3	2	1	
					توضيح الأدوار المختلفة للمساهمة في تقييم المشروع
					استخدام أسلوب مراجعة المشروع
					تحديد نوعية إجراءات المراجعة للمشروع
					تقييم تقارير المراجعة المقدمة
					تحديد رد فعل الإدارة لتقارير المراجعة
					تقييم فعالية استخدام مؤشرات قياس الأداء على الأشخاص العاملين في المشروع
					تقييم فعالية استخدام محفزات الأداء على الأشخاص العاملين في المشروع
					أخرى (الرجاء التوضيح) .....

خطوات مراجعة المشروع					الرجاء ترتيب العناصر التالية حسب أهميتها بالنسبة للخطوات المتبعة في مرحلة مراجعة المشروع الاستثماري في شركتكم (1= غير مهم على الإطلاق، 5= مهم جدا)				
مهم جدا	غير مهم على الإطلاق				مهم				
	1	2	3	4		5			
							الخطوة الأولى: الموافقة على بدء عملية المراجعة		
							الخطوة الثانية: تحضير خطة لعملية المراجعة		
							الخطوة الثالثة: تجميع معلومات أساسية عن المشروع		
							الخطوة الرابعة: التركيز على العوامل الهامة		
							الخطوة الخامسة: الأخذ في الاعتبار المخاطرة المرتبطة بإجراء المراجعة		
							الخطوة السادسة: توضيح الخطوط العريضة للمراجعة		
							الخطوة السابعة: تجميع معلومات أكثر دقة عن المشروع		
							الخطوة الثامنة: تفسير المعلومات		
							الخطوة التاسعة: تقييم المعلومات		
							الخطوة العاشرة: تسجيل النتائج و الاقتراحات		
							الخطوة الحادية عشر: كتابة و تقديم تقرير المراجعة		

إذا كانت الإجراءات المتبعة لاتخاذ القرار الاستثماري في شركتكم هي إجراءات غير رسمية على الأغلب الرجاء الإجابة على الأسئلة من 17-21 ثم متابعة الإجابة على سؤال 22 وما يليه

الرجاء اختيار عنصرا واحدا فقط		17) في ظل غياب الإجراءات الرسمية لاتخاذ القرار الاستثماري، فإن السبب الرئيسي للموافقة على المشروع الاستثماري في شركتكم هو (الرجاء اختيار عنصرا واحدا فقط)	
		الأهمية الإستراتيجية للفرصة الاستثمارية للشركة	
		توفر الأموال اللازمة للمشروع الاستثماري	
		أخرى (الرجاء التوضيح).....	

18) الرجاء اختيار عنصرا واحدا فقط لتحديد من الذي يتحمل المسؤولية الشخصية للقرار الاستثماري في شركتكم			
		مدير القسم	المدير العام للشركة
		مدير المشاريع	المدير المالي
		أخرى (الرجاء التوضيح).....	

19) الرجاء اختيار كل العناصر التي تعبر عن وجود متابعة للمشروع الاستثماري عند تطبيقه			
		متابعة مستمرة لأداء المشروع	
		تقييم مستمر للأشخاص العاملين في المشروع	
		تقييم أداء المشروع بعد الانتهاء منه	
		أخرى (الرجاء التوضيح).....	

20) هل تلعب مراجعة المشروع أي دور في اتخاذ القرار الاستثماري في شركتكم			
		لا	نعم

21) إذا كانت الإجابة بنعم، الرجاء اختيار كل العناصر ذات العلاقة لتحديد أي منها تؤخذ في الاعتبار عند تطبيق مراجعة المشروع في شركتكم			
		مراقبة ربحية المشروع	
		مراقبة العائد من المشروع	
		أخرى (الرجاء التوضيح).....	

## الجزء الثالث: تقييم المشروع و قرار رفع درجة الالتزام بقرار الانسحاب من المشروع الاستثماري

(22) إذا تم الانتهاء من المشروع بنجاح (لم يلاحظ أي فشل و لم يكن هناك قرار بالانسحاب من المشروع)، إلى أي حد كانت التكلفة الفعلية النهائية مطابقة للتكلفة المتوقعة للمشروع؟	
التكلفة النهائية لم تختلف عن التكلفة المتوقعة للمشروع	
التكلفة النهائية اختلفت عن التكلفة المتوقعة للمشروع	
التكلفة النهائية اختلفت عن التكلفة المتوقعة للمشروع بشكل كبير	

(23) عند تقييم المشروعات الحالية في شركتكم، ما هو معيار الفشل الذي تعتمدونه للحكم على المشروع؟ (الرجاء اختيار كل العناصر ذات العلاقة)	
تنفيذ المشروع تجاوز الوقت المتوقع للانتهاء منه	
تنفيذ المشروع تجاوز التكلفة المتوقعة للانتهاء منه	
المشروع لم يعد يحقق الأهداف الإستراتيجية المتوقعة	
المشروع لم يكن من المفترض القبول به من الأساس	
ظهور قوانين جديدة لا يتناسب معها الاستمرار في المشروع	
أخرى (الرجاء التوضيح) .....	

(24) أي من المشاريع التالية تمثل أحدث مشروع شاركتم فيه و لاحظتم فشله؟ (الرجاء اختيار عنصر واحد فقط)	
تشديد و افتتاح فرع جديد للشركة	
تجديد أصول قديمة	
شراء أصول حديثة	
التوسع في الطاقة (مثلا: الإنتاجية أو التسويقية أو الإدارية) للشركة	
أخرى (الرجاء التوضيح) .....	

(25) الرجاء اختيار عنصر واحد فقط لتحديد متى كان أحدث مشروع لاحظتم فشله:			
السنة الماضية	منذ سنتين		
منذ ثلاث سنوات	منذ أربع سنوات		
منذ خمس سنوات	أخرى (الرجاء التوضيح) .....		

(26) الرجاء توضيح ما الذي دفعكم للاستثمار في ذلك المشروع (1= غير مهم على الإطلاق، 5= مهم جدا)					
دوافع الاستثمار					غير مهم على الإطلاق
					مهم جدا
					1
					2
					3
					4
					5
المشروع يحقق أهداف إستراتيجية للشركة					
توفر الموارد المالية					
الأثر الإيجابي للمشروع على المجتمع					
أخرى (الرجاء التوضيح) .....					

(27) ماذا حدث للمشروع عندما لاحظتم فشله؟	
تم ضخ موارد إضافية للمشروع (اتخذ قرار خفض درجة الالتزام بقرار الانسحاب)	
تم الانسحاب من المشروع و إلغاؤه (اتخذ قرار رفع درجة الالتزام بقرار الانسحاب)	
تم تحويل و تغيير المشروع (اتخذ قرار رفع درجة الالتزام بقرار الانسحاب)	

<b>(28) الرجاء توضيح ما يلي بشكل تقريبي:</b>	
ريال سعودي .....	■ التكلفة النهائية للمشروع الذي لاحظتم فشله عند إلغاؤه
% .....	■ نسبة زيادة التكلفة النهائية عن التكلفة المعتمدة للمشروع

<b>(29) ماهي التكلفة الإضافية التي تسبب فيها إلغاء المشروع الذي لاحظتم فشله؟ (الرجاء اختيار كل العناصر ذات العلاقة)</b>	
ريال سعودي .....	■ غرامة فسخ العقد مع الموردين
ريال سعودي .....	■ غرامة فسخ العقد مع العملاء
ريال سعودي .....	■ غرامة فسخ العقد مع الجهة الممولة (عدم القدرة على السداد)
ريال سعودي .....	■ غرامة حكومية
ريال سعودي .....	■ تكلفة إضافية للتأمين
ريال سعودي .....	■ تكلفة إنهاء الشراكة في الشركة
ريال سعودي .....	■ أخرى (الرجاء التوضيح) .....

<b>(30) ماهو تأثير، إن وجد، فشل المشروع و إلغاؤه على الشخص المسئول مباشرة عن إدارة المشروع؟ (الرجاء اختيار أكثر العناصر القابلة للتطبيق)</b>	
	■ لم يكن هناك أي تأثير
	■ لم يعد هذا الشخص يشارك في إدارة أي مشروع
	■ خسر هذا الشخص عمله و ترك الشركة
	■ أخرى (الرجاء التوضيح) .....

### الجزء الرابع: محددات قرار رفع درجة الالتزام بقرار الانسحاب من المشروع الاستثماري

<b>(31) من خبرتكم في التعامل مع المشروعات التي لاحظتم فشلها، الرجاء تحديد إلى أي مدى تتفقون أو تختلفون على تأثير العوامل السيكولوجية التالية على قرار رفع درجة الالتزام بقرار الانسحاب من المشروع الاستثماري في شركتكم (1= اختلف تماما، 3= غير متأكد، 5= اتفق تماما)</b>					
العوامل السيكولوجية					
اتفق تماما	غير متأكد	1	2	3	4
5	4	3	2	1	
					■ الرغبة في تبرير قرار استثماري سابق
					■ متخذ القرار مسئول عن بدء المشروع
					■ إحساس متخذ القرار بالذنب و الندم على فشل المشروع
					■ أتيح لمتخذ القرار الفرصة في التعبير عن ضعف ثقته بنفسه
					■ تمت الموافقة على المشروع بقرار جماعي
					■ أتيح لمتخذ القرار الفرصة في التعبير عن زيادة ثقته بنفسه
					■ شعور متخذ القرار بالأمان الوظيفي
					■ رغبة متخذ القرار في الوصول إلى الكفاءة الذاتية
					■ لا يوجد لدى متخذ القرار صبر على إدارة مشروع فاشل
					■ لدى متخذ القرار أهداف خاصة
					■ أسس متخذ القرار في ذهنه ميزانية محددة للمشروع
					■ اعتقاد متخذ القرار بان المشروع فاشل ولا يمكن تغيير ذلك
					■ أخرى (الرجاء التوضيح) .....





العوامل الإستراتيجية					35) من خبرتكم في التعامل مع المشروعات التي لاحظتم فشلها، الرجاء تحديد إلى أي مدى تتفقون أو تختلفون على تأثير العوامل الإستراتيجية التالية على قرار رفع درجة الالتزام بقرار الانسحاب من المشروع الاستثماري عدم-التصعيد في شركتكم (1=اختلف تماما، 3=غير متأكد، 5=اتفق تماما)
اختلف تماما	غير متأكد	اتفق تماما			
1	2	3	4	5	
					الاستغلال الأمثل للموارد المتاحة
					توفر فرصة استثمارية أخرى أكثر جاذبية استراتيجيا
					المشروع لازال في مراحله المبكرة من التنفيذ
					المراقبة المستمرة لتصرفات مديري المشروع
					انخفاض درجة توفر تقارير مراجعة المشروع
					مدى المرونة في إعادة هيكلة المشروع
					درجة المخاطرة في المشروع منخفضة
					أخرى (الرجاء التوضيح) .....

العوامل المعلوماتية					36) من خبرتكم في التعامل مع المشروعات التي لاحظتم فشلها، الرجاء تحديد إلى أي مدى تتفقون أو تختلفون على تأثير العوامل المعلوماتية التالية على قرار رفع درجة الالتزام بقرار الانسحاب من المشروع الاستثماري في شركتكم (1=اختلف تماما، 3=غير متأكد، 5=اتفق تماما)
اختلف تماما	غير متأكد	اتفق تماما			
1	2	3	4	5	
					توفر معلومات غير واضحة عن فشل المشروع
					مدى مصداقية مصدر المعلومات
					وجود تحيز في المعلومات
					إتاحة المعلومات للجمهور
					التوقيت المناسب للمعلومات المساعدة لمتخذ القرار
					أخرى (الرجاء التوضيح) .....

العوامل					37) الرجاء ترتيب العوامل التالية لتوضيح إلى أي درجة قيد تطبيق مراجعة مستمرة للمشروع على تأثيرها في قرار رفع درجة الالتزام بقرار الانسحاب من المشروع الاستثماري في شركتكم (1=غير مهم على الإطلاق، 5=مهم جدا)
غير مهم على الإطلاق	مهم جدا				
1	2	3	4	5	
					العوامل السيكلوجية
					العوامل الثقافية
					العوامل الاجتماعية
					العوامل السياسية
					العوامل المالية
					العوامل ذات العلاقة بالشركة
					العوامل الإستراتيجية
					العوامل المعلوماتية

## الجزء الخامس (اختياري):

اسم الشركة: .....

الاسم: .....

السن: .....

الجنس: .....

ذكر ☐ أنثى ☐

المستوى التعليمي: .....

أقل من الثانوية العامة ☐ درجة الثانوية العامة ☐

جامعي ☐ دراسات عليا ☐

شهادات تخصصية (الرجاء التوضيح) ..... ☐

الرجاء تحديد: .....

إذا كنت ترغب في نسخة من نتائج هذه الدراسة: .....

نعم أرغب ☐ لا أرغب ☐

إذا كنت ترغب بالمشاركة في المقابلات الشخصية: .....

نعم أرغب ☐ لا أرغب ☐

إذا كانت الإجابة نعم لأحد أو كلا السؤالين الأخيرين الرجاء إدراج المعلومات التالية: .....

العنوان: .....

رقم الهاتف: .....

الفاكس: .....

البريد الإلكتروني: .....

## Appendix (C): A Summary of Escalation/De-Escalation Empirical Research

**Table 1: A Summary of Studies that Examined Controlled Variables Separately and Directly**

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
1	Rubin & Brockner (1975) USA	Approach-Avoidance	Decrement (high/low rate of decrease), Salience (high vs. low), Queue positions (first/third in the line).	Laboratory	72 (M & F) undergraduates
2	Staw (1976) USA	Self-Justification	Personal responsibility (high/low), Decision consequences (positive/negative).	Laboratory	240 business school undergraduates
3	Staw & Fox (1977) USA	Self-Justification	Initial responsibility (high/low), Efficacy of resources (high/low), Time (three periods).	Laboratory	96 business school undergraduates (48 M & 48 F)
4	Staw & Ross (1978) USA	Self-Justification	Prior experience (success/failure), Type of setback (exogenous/endogenous).	Laboratory	120 psychology undergraduates
5	Brockner et al., (1979) USA	Self-Justification	Prior limit setting (public/private/none), Process of resource allocation (self-sustaining/self-terminating)	Laboratory	86 undergraduates (46 M & 40 F)
6	Fox & Staw (1979) USA	Self, & External-Justification	Degree of resistance (high/low), Job insecurity (high/low).	Laboratory	160 business school undergraduates (80 M & 80 F)
7	Brockner et al. (1981) USA	External-Justification	Social anxiety (high/low), Gender, Decision type (risky/cautious), Importance of rewards (high/low).	Laboratory (2 experiments)	92 undergraduates [56 F & 36 M], 86 people [42 F & 44 M]
8	Caldwell & O'Reilly (1982) USA	Self-Justification	Personal responsibility (high/low), Choice (high/low).	Laboratory	72 business undergraduates [41 F & 31 M]
9	Leatherwood & Conlon (1983) USA	Self-Justification	A third party to blame (present/absent), Foreseeability (present/absent), Persistence of the setback (present/absent).	Laboratory	68 MBA & executive MBA students.
10	Bazerman et al. (1984) USA.	Self-Justification	Decision (group/individuals), Initial responsibility (high/low)	Laboratory	183 undergraduates [male]
11	Brockner et al. (1984) USA.	Modeling effects	An escalation model (present/competitive/none).	Laboratory (4 experiments)	195 undergraduates from both genders.
12	Arkes & Blumer (1985) USA	Sunk Costs	Sunk costs (high/low).	Laboratory (10 experiments)	900 undergraduates
13	McCain (1986) USA	Attribution theory	Choice (high/low), Alternative investment (present/absent).	Laboratory	100 undergraduates [50 F & 50 M]
14	Bateman (1986) USA	Reactance theory Attribution theory.	Financial information (success/failure), Probability of future success (chosen division/another division), Attribution of decision performance to (internal/external causes), Gender.	Laboratory (2 experiments)	179 undergraduates [120 F & 95 M].
15	Singer & Singer (1986) New Zealand	Self-Justification	Initial responsibility (high/low), Locus of control (internal/external).	Laboratory	93 undergraduates
16	Brockner et al. (1986) USA	Self-Identity	Task performance (diagnostic/none), Performance (increase/decrease fortune), Identification with outcome (high/low).	Laboratory (2 experiments)	97 introductory psychology students [61 f & 36 m]

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
17	Leatherwood & Conlon (1987) USA	Self-Justification	Initial responsibility (high/ low), Diffusion of blame (present/ absent), Cause of setback (foreseeable/unforeseeable).	Laboratory	24 MBA students & 43 business undergraduates.
18	Hollenbeck et al. (1989) USA	Goal Attainment	Goal public-ness (present/absent) Goal origin (self-set/assigned).	Laboratory	190 business school undergraduates
19	Barton et al. (1989) USA	Self-Justification	Initial responsibility (present/absent), Feedback framing (positive/positive).	Laboratory	123 employees in a high technology firm
20	Garland (1990) USA	Sunk Costs	Sunk costs (five levels: high to low).	Laboratory	407 business school undergraduates
21	Garland et al. (1990) USA	Sunk Costs	Sunk costs (high/low), Feedback (ambiguous/unambiguous)	Laboratory, and laboratory field survey	Lab: 77 business school undergraduates, 235 independent petroleum geologists
22	Garland & Newport (1991) USA	Prospect theory	Sunk costs (high/low amount vs. high/low proportion)	Laboratory (2 experiments)	88 management course undergraduates, 36 MBA students
23	Whyte (1991) Canada	Self-Justification	Initial responsibility (groups/individuals/none).	Laboratory	173 graduates [67 F & 106 M] with work experience.
24	Goltz (1992) USA	Partial-Reinforcement	Recommitment over time (18 periods).	Laboratory (2 experiments)	164 psychology undergraduates, 102 management undergraduates.
25	Simonson & Staw (1992) USA	Self-Justification	Responsibility, Threat reduction, Through decision-making, Goal setting, Outcome and decision process accountability.	Laboratory	193 business school undergraduates.
26	Jeffrey (1992) USA	Self-Justification	Personal responsibility (high/low), Experience (present/ absent).	Laboratory	41 independent auditors from a single big 6 accounting firm
27	Brown & Solomon (1993) USA	Self-Justification	Relationship between subject, advisor, and division committee funding decision (agree/disagree), Project outcome (ex post best/not vs. no outcome).	Laboratory	92 senior business school undergraduates
28	Beauvois et al. (1993) France	Cognitive Dissonance	External justification (present/absent), Information (positive/negative/none)	Laboratory (2 experiments)	115 natural science students 806 customers of a supermarket.
29	Conlon & Garland (1993) USA	Project Completion	Initial responsibility (high/low), Sunk costs (different levels), Project completion (several degrees), Information about the budget (known/unknown)	Laboratory (2 experiments)	808 business school undergraduates
30	Whyte (1993) Canada	Prospect theory	Decision making (groups/individuals), Decision frame (no sunk costs/sunk costs/initial responsibility for sunk costs).	Laboratory	325 subjects [133 F & 192 M] [200 graduates & 125 undergraduates]
31	Bobocel & Meyer (1994) Canada	Self-Justification	Justification (public/private/choice only vs. none).	Laboratory	137 undergraduates enrolled in a psychology class
32	Harrell & Harrison (1994) USA	Agency theory	Managers incentive to shirk (present/absent), Private information (present/absent)	Laboratory	122 MBA students [ 42 F & 80 M]
33	Schaubroeck & Davis (1994) USA	Prospect theory	Personal responsibility (high/low), Riskiness of alternatives (high/low), Relative risk of reinvestments (more/less risky).	Laboratory (2 experiments).	365 undergraduates [ 175 F & 190 M]

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
34	Keil et al. (1995) USA & Finland.	Self-Justification Prospect theory	Prior commitment (high/low), Nationality (Americans/ Finnish), Sunk costs (high/low), Alternative investment (present/ absent)	Laboratory (5 experiments)	170 MBA students who have work experience, 254 IT master students [107 M & 147 F] 569 business undergraduates
35	Devine & O'Clock (1995) USA	Prospect theory	Sunk costs (present/absent), Opportunity costs (implicit/ explicit), Information framing (negative/positive).	Laboratory	282 business undergraduates [161 M & 121 F]
36	Harrison & Harrell (1995) USA	Self-Justification	Initial responsibility (present/absent), Internal Rate of Return (prospective/overall IRR), Net Present Value (prospective/ retrospective).	Laboratory (2 experiments)	Study 1: 78 PMBA students who have work experience. Study 2: 89 PMBA students who have managing experience
37	Heath (1995) USA	Mental Budgeting	Mental budget (set/not), Sunk costs (high/low), expected benefits (present/absent), Sunk costs (time/monetary).	Laboratory (5 experiments)	537 undergraduates.
38	Tan & Yates (1995) Singapore	Sunk Costs	Accounting backgrounds (present/absent), Sunk costs (high/ low), Explicit estimates of future returns, Prior investment (present/absent)	Laboratory (2 experiments)	287 undergraduates (137 accounting & business 150 science, art, engineering)]
39	Kite et al. (1997) USA.	Self-Image	Frequency of performance appraisal (long/short term).	Laboratory	109 subjects.
40	Boulding et al. (1997) USA.	Sunk Costs Self-Justification.	Pre-commitment to a self-specified stopping rule, Poor outcomes, Future opportunity costs, Sequential decision decoupling, Ambiguous environment	Laboratory	209 executive students with work experience 20 capital budgeting experts.
41	Chow et al. (1997) USA & Taiwan	Culture Values	Initial responsibility (present/absent), Nationality (Americans/ Chinese), Framing of information (positive/negative).	Laboratory	192 undergraduates [109 Americans: 51 F & 58 M, 83 Chinese: 56 F & 27 M].
42	Gosh (1997) USA	Capital Budgeting	Future benefits of additional expenditures (available/not), Progress report (available/not), Feedback (ambiguous/not).	Laboratory	96 subjects [29 undergraduates & 67 MBA students]
43	Sharp & Salter (1997) Asia, North America.	Agency theory Prospect theory	Adverse selection (present/absent), Nationality (Asia/North America), Framing (neutral/sunk costs effect).	Laboratory	Executive MBA from Canada, USA, Hong Kong, and Singapore.
44	Whyte et al. (1997) Canada	Self-Efficacy	Self-efficacy (high/low/none).	Laboratory	132 [62 F & 70 M; 59 graduates with work experience & 73 undergraduates]
45	Garland & Conlon (1998) USA	Goal-Substitution	Nationality (American/Chinese), Sunk costs (high/low), Opportunity cost (present/absent), Degree of project completion (high/low).	Laboratory (3 experiments)	111 mid-senior bank managers, 68 Chinese graduate students, 32 MBA students
46	Kirby & Davis (1998) USA	Agency theory	Initial responsibility (present/absent), Monitored managers (present/absent), Accountability.	Laboratory	102 management undergraduates [50 F & 52 M]

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
47	Goltz (1999) USA	Behavioral Momentum	Magnitude (large/medium/low levels of training), Rate of increasing in quarters (1/2 vs. 1/3 vs. 1/4 vs. 1/6).	Laboratory	313 introductory management course undergraduates, 44 MBA students.
48	Harrison et al. (1999) China, USA	Agency theory	The potential for personal gain (present/absent), Nationality (Chinese/Americans), Private information (public/private)	Laboratory	230 MBA students [ 119 Chinese (68 M & 51 F), 111 Americans (71 M & 40 F)]
49	Rao & Monk (1999) Canada	Self & External-Justification	Motivation (inner/other), Anonymity (anonymous/ non)	Laboratory	26 business graduates & undergraduates [13 M & 13 F]
50	Hantula & Bragger (1999) USA	Decision Dilemma theory	Equivocality (more/less predictable feedback), A standard against which feedback may be judged (present/absent).	Laboratory	112 undergraduates enrolled in a psychology course
51	Ruchala (1999) USA	Prospect theory	Budget goals (achieved/not achieved), Incentives (profit sharing/bonus-plan),	Laboratory	60 undergraduates enrolled in management course
52	Rutledge & Karim (1999) USA	Agency theory	Moral reasoning (high/low), Adverse selection (present/ absent).	Laboratory	67 MBA, MS-accounting [29 F & 38 M] with work experience
53	Citera et al. (2000) USA	Group Decision Making	Personal responsibility (high/low), Decision context (individuals /groups/groups with shared information)	Laboratory	226 undergraduates recruited from psychology and business courses.
54	Boehne & Paese (2000) USA	Goal Completion	Sunk costs (high/low), Sales price (high/low), Degree of project completion (high/low).	Laboratory	199 business and psychology undergraduates
55	Greer & Stephens (2001) USA and Mexico	Self-Justification	Nationality (Americans/Mexicans), confidence (high/low), Personal responsibility (direct/indirect) Information source (junior/peer engineer)	Laboratory	159Mexicans [31 decision makers in a plant, 128 MBA students (106 M & 53 F) & 153 Americans [13 managers, 11 IS managers, 18 students, 111 MBA students (104 M & 47 F)
56	Seibert & Goltz (2001) USA	Self-Justification	Decision unit (group/individuals), Magnitude (moderate/large)	Laboratory	302 undergraduates enrolled in an introductory management course [178 M & 124 F]
57	Schmidt & Calantone (2002) USA	Escalation of Commitment theory.	Personal responsibility (high/low), Product innovativeness (high/less), information source credibility (high/low) Stage of new product development (3 stages).	Laboratory	285 managers drawn from executive programs [114 F & 171 M].
58	Schulz & Cheng (2002) Australia	Self-Justification	Initial responsibility (high/low), Information asymmetry (present/absent).	Laboratory	113 management accounting undergraduates.
59	Tan & Yates (2002) Singapore	Escalation theory	Prospective additional investment (exceed/not exceed initial budget), Prospective multi stage budget (exceed/not exceed in a stage of initial budget), Sunk costs, Opportunity costs (present/ absent).	Laboratory (5 experiments)	185 undergraduates, 211 MBA students with work experience. 21 master of construction management with work experience.

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
60	Cheng et al. (2003) Australia	Cognitive Dissonance	Hurdle rates (no hurdle rate/self-set/organization-set)	Laboratory	205 undergraduates enrolled in a second-year managerial accounting course
61	Salter et al. (2004) USA, Mexico	Agency theory Prospect theory	Incentive to shirk (available/absent), Nationality (Americans/Mexicans), Information framing (positive/negative)	Laboratory	286 managers (MBA, Executive MBA, executive development programs in the business school [201 Americans, 85 Mexican]).
62	Brecher & Hantula (2005) USA	Equivocality theory	Equivocal (high/low ambiguous).	Laboratory	43 undergraduates enrolled in an introductory psychological course
63	Biyalogorsky et al. (2006) USA	Escalation Bias	Personal involvement (high/low), Initial information (positive/ very positive), New information (negative/very negative)	Laboratory	142 participants [ 95 MBA students, 47 midlevel managers enrolled in Executive MBA]
64	Wong et al. (2006) Hong Kong	Cognitive Dissonance	Personal responsibility (available/non), Unpleasant emotions (high/low), Momentary negative effect (strong/weak)	Field and laboratory (3 experiments)	462 undergraduates enrolled in organizational behavior classes [187 M & 275 F]
65	Keil et al. (2007) USA	Cognitive Bias	Problem recognition (more/less), Illusion if control (high/low), Selective perception (high/low).	Laboratory	178 undergraduates enrolled: 96 in marketing course & 82 in CIS course
66	Sivanathan et al. (2007) USA	Self-Justification	Self-affirm (present/absent), Self-esteem (high/low).	Laboratory (3 experiments).	231 undergraduates
67	Sivanathan et al. (2008) USA	Self-Affirming	Self-esteem (high/low), Self-values (present/absent) Task relevance affirmation (high/low).	Laboratory (3 experiments)	220 undergraduates [136 F & 84 M] were paid \$10
68	Ku (2008) UK	Learning	Post regret (escalators/non)	Laboratory (2 experiments)	122 undergraduates [84 F & 38 M] were paid \$10
69	Jani (2008) USA	Self-Efficacy	Initial task-specific self-efficacy (high/low), Project risk factors (exogenous/endogenous).	Laboratory	20 undergraduates, 16 graduates, 35 practicing managers.
70	Zhiyuan & Qing (2008) China	Prospect theory	Sunk costs (high/low), Framing (positive/negative), Decision making process (individuals/groups with prior decisions/groups without).	Laboratory	211 business school undergraduates [116 F & 95 M]
71	Slaughter & Greguras (2008) USA	Self-Justification	Personal responsibility (present/absent/third candidate).	Laboratory	204 undergraduates students enrolled in psychology course [159 F & 45 M].
72	Berg et al. (2009) USA	External-Justification	Decision settings (single personal/public information social/ information asymmetry social).	Laboratory	80 undergraduates
73	Fox et al. (2009) USA	Status Quo Bias	Availability of alternative (two/three equal attractiveness) Difficulty of decision (negative/positive features and attributes).	Laboratory	340 students [190 F & 150 M]



<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
74	Greitemeyer et al. (2009) UK	Group Decision theory	Group composition (homogenous/heterogeneous), Decision making procedure (devil's advocacy/no procedure), Time of measurement (one/two).	Laboratory	138 high school students, in the business and economics curriculum (99F, 39 M)
75	Chong & suryawati (2010) Australia	Agency theory	Monitoring control (present/absent) Information (public/ private).	Laboratory	74 undergraduates commerce program
77	Hatfield et al. (2011) USA	Prior involvement	Auditor involvement (present/absent), Client pressure (present/absent)	Field laboratory (email)	149 practicing audit professional
78	Karami & Farasani (2011) Iran	Real Options	Real option (present/absent), NPV (present /absent)	Laboratory	80 financial managers
79	Molden & Hui (2011) USA	Self-regulation	Personal responsibility (present/absent), Activated motivations (prevention/promotion/none)	Laboratory (2 experiments)	238 different ethnics, education levels (168 F & 70 M)
80	Yen & Lin (2012) Taiwan	Terror Management	Mortality salience (present/not)	Laboratory	76 military officers (70 M, 6 F).
81	Moser et al. (2013) Germany	De-escalation	Accountability (present/absent), Choice (present/absent)	Laboratory	60 psychology and business students
82	Salter et al. (2013) Canada, China, Hong Kong, India, USA, Malaysia, Mexico, Pakistan, Singapore.	Culture	Agency condition (present/absent), Long term orientation (high/low), Uncertainty avoidance (high/low), Individualism (high/low).	Laboratory	1208 MBA and executive education students for 17 years
83	Gomez & Sanchez (2013) USA, Mexico	Self-Justification Prospect theory	Culture (nationality), Decision context (high/low), Framing (negative/positive)	Laboratory	146 working MBA students

**Table 2: A Summary of Studies that Examined Controlled Variables Separately and Indirectly**

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Moderator/Mediator</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
1	Conlon & Wolf (1980) USA	Self and External Justification	Moderator: Strategy (calculators vs. non)	Involvement (high/low), Visibility (high/low), Cause of setback (foreseeable/none).	Laboratory	96 undergraduates studying an organizational theory course
2	Rutledge (1995) USA	Prospect theory	Moderator: Information framing (negative vs. positive).	Group initial responsibility (present/absent).	Laboratory	213 employers in professional business position [143 M & 70 F]
3	Brody & Kaplan (1996) USA	Personal Involvement	Moderator: Level of internal audit experience	Personal responsibility (high/low).	Laboratory	39 internal auditors attending a regularly scheduled meeting [24 M & 15 F]
4	Keil et al., (2000) Finland, Netherlands, Singapore	Risk-Taking theory	Mediator: Risk perception (high vs. low)	Nationality (Finland/Netherlands/Singapore), Sunk costs (high/low), Risk propensity (high/low).	Laboratory	536 undergraduates & masters enrolled in an introductory IS course [185 from Finland, 121 from Netherlands, 230 from Singapore]
5	Heng et al. (2003) USA	Self and External Justification	Moderator: Sunk costs (high vs. low).	Approach (shoulder blame/provide assurance/do nothing), Individual (superiors/peers).	Laboratory	360 senior IS undergraduates [53% M & 47%F], subjects received monetary payment upon completion.
6	Moon et al. (2003) USA	Group Decision Making	Mediator: Decision confidence	Previous performance (high/low), Sunk cost (low/high), Project completion (low/ high), Decision process (individual/group with prior decision/group with no prior decision).	Laboratory (2 experiments)	982 undergraduates enrolled in a capstone management course.
7	Kadous & Sedor (2004) USA	Mental Representation	Mediator: Knowledge score (high vs. low)	Assigned purpose (relevant/irrelevant/general) self-monitoring (high/low), Justification (present/absent), Consultation of a third-party (auditors), Assigned purpose of consultation.	Laboratory (2 experiments)	82 senior level undergraduates enrolled in a managerial accounting course, 71 senior level undergraduate accounting majors.
8	Wong (2005) Hong Kong	Sitkin-Pablo model of risk taking (1992)	Mediator: Risk perception (high vs. low)	Personal responsibility (available/non), Risk propensity (high/low), Outcome expectancy (high/low).	Laboratory (2 experiments)	234 Chinese- English secondary school teachers [ 82 M & 152 F]
9	Cuellar et al. (2006) USA	Heuristic-Analytic theory	Mediator: Relevance of message	Auditor credibility (positive/negative), Gender, Age.	Laboratory	60 students [26 M & 34 F]
10	He & Mittal (2007) USA	Project Completion	Moderator: Project risk (high vs. low)	Project completion (10% vs. 50% vs. 90%), Need for information (important/ none).	Laboratory (2 experiments)	969 business school undergraduates
11	Wong et al. (2008) China	Cognitive Dissonance theory	Mediator: Strength of prior beliefs (high vs. low)	Rational thinking style (high/low), Personal responsibility (present/absent).	Laboratory (3 experiments)	547 undergraduates (265 F & 282 M)

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Moderator/Mediator</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
12	Denison (2009) USA	Real Options	Mediator: Cognitive possibility of project abandonment possibility	Capital budgeting (NPV/real options), Time (first/second period).	Laboratory (2 experiments)	74 MBA & MA students [30 F & 44 M]
13	O'Neill (2009) USA	Social Information processing theory. Appraisal theories of Emotion.	Mediator: Psychological safety	Anger and Quilt feeling Measured on a five-scale ranged from almost never to several times a day. Personal responsibility (individual/collective).	Field experiment Laboratory	197 employees of major metropolitan areas randomly selected [103 F & 93 M] 60 undergraduates enrolled in a management course
14	Harvey & Victoravich (2009) USA	Self-Justification, Cognitive Dissonance theory	Mediator: Anticipatory emotions	An alternative project (present/absent), The level of progress toward completion (low 10% vs. high 90%).	Laboratory	307 undergraduate business students [143 F & 164 M]
15	Schulz-Hardt et al. (2009) Germany	Prospect theory	Mediator: Responsible participants' preferences	Personal responsibility (given/not), Assessment of preferences (initial/retrospective).	Laboratory	293 graduates and undergraduates [158 F & 135 M]
16	Gunia et al. (2009) USA	Self-Justification	Mediator: Vicarious self-justification	Decision evaluation (perspective-taking/objective/none), Attributes (shared/different), Participation (interdependence/dependent).	Laboratory (3 experiments)	191 undergraduates [110 F & 81 M]
17	Tsai & Young (2010) USA	Risk Perception	Mediator: Risk perception	Fear (present/absent), Anger (present/absent).	2 Field laboratory (email)	98 adults interested in in completing behavioural studies (72 F & 26 M)
18	Ting (2011) USA	Goal Completion	Mediator: Goal proximity	Free draws (5/0), Sunk costs (high/low).	Laboratory (2 experiments)	277 undergraduates
19	Contractor et al. (2012) USA	New Product Development	Moderator: Reward for success	Personal responsibility (self-initiated/organizationally).	Laboratory (2 experiments)	335 MBA & MBA executives
20	Lee et al. (2012) USA & India	Goal Setting theory	Moderator: Commitment to a budget and schedule goal	Goal difficulty (high/low), Goal specificity (very specific/less specific), Project completion (high/low).	Field laboratory (email)	349 experienced workers from companies

**Table 3: A Summary of Studies that Examined Uncontrolled Variables Separately**

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
1	Bondt & Makhija (1988) USA	Prospect theory	Sunk costs, Average return, Project completion, negative information	Case study (single)	A Nuclear power program (\$50 million)
2	Keil (1995) USA	Multi theoretical approach	Personal responsibility, Lack of goal congruency, Negative framing, Information asymmetry	Case study (single)	An IT project to help a company's sales representative produce error-free configurations prior to price quoting.
3	Lipshitz (1995) USA	Single-option paradigm	Anger, frustration feelings, Face saving, Non-achievable goal, Risk involved.	Case study (single)	The Desert Storm decision
4	Staw & Hoang (1995) USA	Sunk costs effect	Justification, Face saving, Sunk costs,	Case study (single)	National Basketball Association draft
5	Ryan (1995) Australia	Prospect theory	Investors' beliefs about the course of action, Investors not to be embarrassed.	Case study (5 cases)	Investors that invested in five portfolio companies
6	Drummond (1997) UK	Decision dilemma theory.	Desire for self-justification, Expectations are not met, Paucity of information.	Case study (single)	A salon owner that wants to dismiss an employee.
7	Drummond (1998) UK	Escalation theory	Justify previous decision, Socially motivated, Sunk costs, Technical difficulties	Case study (single)	An IT project (Taurus)
8	Keil & Robey (1999) USA	The mum and deaf effect	Less tolerance for failure, Awareness of problems, Publicly stated limits, and Clear success and failure criteria, Outcome oriented evaluations, Regular evaluations of projects, Separation of responsibility for approving and evaluating projects.	Telephone interviews	75 IS auditors: population. 42 interviewees
9	Montealegre & Keil (2000) USA	Theory-building approach	Problem recognition, Re-examining prior course of action, Alternatives, Implement an exit strategy	Case study (single)	An IT project at Denver International Airport.
10	Keil et al. (2000) USA	Multi theoretical model.	Psychological self-justification, Social self-justification, Sunk costs, Goal incongruence, Completion effect, Information asymmetry.	Cross- sectional (mailed) survey	2231 internal & external auditors' members of ISACA [information systems audit and control association, (Response rate 26%)
11	Kisfalvi (2000) Canada	Self- External-justification.	Managers being successful, achieving, clever, Being respected, Sunk costs.	Case study (single)	A small entrepreneurial firm
12	Bourgie (2001) USA	Sunk costs	Age, Salary, Individual, club performance, Managing style.	Case study (single)	736 Major league Baseball players
13	McNamara et al. (2002) USA	Intervention-Avoidance	Monitoring, Change in decision responsibility, Control variables (Borrower relationship characteristics, Prior size of loan, Previous performance of a branch, and Branch size).	Observed data	Total 787 observations of loan and financial data.

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
14	McElhinney & Proctor (2005) UK	Justification theory	Internal resistance, Powerful product champions, Limited knowledge of capital costs or ongoing revenue costs, Lack of knowledge of the level of risk, No stated project objectives.	Case study (single)	Establishing call/contact centres in local government in the UK.
15	Pan et al. (2006) UK	Lewin's (1951) Change theory	Worry of punishment, Sunk costs, Managers loss of control, Availability of an alternative, Monitoring, Restructuring	Case study (single)	An electronic project at a UK public organization.
16	Pan et al. (2006) UK	Approach-Avoidance theory	Reward for success, Cost of withdrawal, Cost of persistence, Proximity to goal, Ambiguity.	Case study (single)	An electronic project at a UK public organization that serves the local population.
17	Mähring et al. (2008) Denmark	Montealegre & Keil's (2000) De-Escalation Model	Noticeable role for communicators during the project.	Case study (single)	An IT large Danish project for higher education institutions.
18	Mährang & Keil (2008) Europe	Narrative theory Visual mapping	Project charter ambiguity, Goal conflict, Management incapable to determine problems, Availability of unfeasible alternatives.	Case study (single)	NDS (new deposit system) a large IT project undertaken by a mid-sized bank in 1990
19	Pan et al. (2009) UK	Approach-Avoidance Theory	Psychological self-justification, Social self-justification, Cost of withdrawal/ resistance, Reward for success, Sunk costs, Proximity to goal, Ambiguous, Asymmetry	Case study (single)	An IS large utility provider project based in the U.K.
20	Korzaan & Morris (2009) USA	Psychological factors	Implementation mind-set, Locus of control, Preference for consistency, Time urgency.	Online survey	232 survey responses of IS project stakeholders: developers, leaders and end users [93 F & 139 M]
21	Pan & Pan (2011) UK	Theories of Leadership, Politics and Interpersonal	Provision of psychological safety, Personal appeal Consultation Agile mobilization, Re-establish legitimacy and stakeholder commitment, Continues empowerment.	Case study	E-procurement project in the British metropolitan borough council

**Table 4: A Summary of Studies that Examined Variables within Groups**

<i>No.</i>	<i>Author(s), Year, &amp; Country</i>	<i>Theoretical Model</i>	<i>Examined Variables</i>	<i>Data Collection Method</i>	<i>Sample Characteristics</i>
1	Ross & Staw (1986) Canada	Ross & Staw model (1986) of escalation	Project, Psychological, Social, and Structural determinants.	Single case study	Expo 86: \$1.5 Billion
2	Ross & Staw (1993) USA	Organization theory	Psychological, Project, Social, Organisational, Contextual determinants.	Single case study	Shoreham Nuclear Power Plant
3	Drummond (1994) UK	Ross & Staw model (1986) of escalation	Project, Psychological, Social, and Structural determinants.	Single case study	A technical services department of the city council that worth £35 millions
4	Drummond (1995) UK	Bowen's (1987) two factor model	Psychological, Social, Information effects.	Single case study	Partnership between four solicitors
5	Newman & Sabherwal (1996) USA	Ross & Staw model (1986) of escalation	Project, Psychological, Social, and Structural determinants.	Single case study	A large regulated utility in the telecommunications industry.
6	Drummond & Hodgson (1996) UK	Escalation theory	Psychological, Social, Political, Organisational effects.	Single case study	A technical services department of the city council.
7	Sabherwal et al. (2003) USA	Self-justification. Prospect theory	Project, Psychological, Social, and Structural factors.	Laboratory (2 experiments)	208 MIS students [56 graduates & 152 undergraduates] 101 M & 107 F
8	Chakravorty (2009) USA	Escalation theory	Project, Psychological, and Organisational determinants.	Single case study	Six-sigma program in an electrical company
9	Alvarez et al.(2011) Mount Everest	Escalation theory	Project, Psychological, Social, and Organisational determinants	Single case study	Disaster of climbing MT Everest in 1996

**Table 5: Detailed Examined Variables within Groups**

No.	Author(s)& Year	<i>Determinants and forces of escalation/de-escalation</i>			
		<i>Project</i>	<i>Psychological</i>	<i>Social</i>	<i>Structural</i>
1.	Ross & Staw (1986)	Objectively beneficial project, Doubtful costs and benefits, and Clear-cut financial losing project.	Information processing errors and Personal responsibility.	Need for external justification, Political importance, Pressures for behavioural consistency, and Modelling.	Project side-bets, Inner and outside relationships, and Fear of international embarrassment.
2.	Ross & Staw (1993)	Ambiguity of economic data, Sequencing of project's costs and benefits, Project categorization as a long investment, Salvage value, Closing costs, and Overall size of project.	Personal reinforcement history and Errors in information processing.	External justification, Management identified with project, Norms of consistency and modelling.	Organisational: technical side-bets, Political support, and Institutionalization. Contextual: Project became larger than the company, and External political parties.
3.	Drummond (1994)	Paucity of alternatives.		Committee embarrassment, Political pressures, and Desire to maintain appearance.	The committee was tied to their inheritance.
4.	Drummond (1995)	Costs of withdrawal and Salvage value.		Fear of confrontation.	Timing of information.
5.	Newman & Sabherwal (1996)	Project payoff, payoff structure, Infeasibility of alternatives, Salvage value, and Closing costs.	Reinforcement traps, Information processing errors, Value attached to turnarounds, Sunk costs, and Framing.	Public identification with project, Responsibility for failure, Modelling, and Political rivalry.	Political support and resource constrains.
6.	Drummond & Hodgson (1996)			Director became a scapegoat, Political pressures, and Preserving the image.	Committee was tied to its inheritance.
7.	Sabherwal et al. (2003)	Project payoff, Cost of payoff.	Initial commitment, Decision frame.	Competitor experience, Job security.	CEO support, Side bets
8.	Chakravorty (2009)	Unclear definition and incorrect sequence of program, Illusion of control, Lack of long-term improvement objectives, Unavailability of accurate and unbiased data.	Selective perception		
9.	Alvarez et al. (2011)	Low salvage value, Expedition goal had a large payoff, Mismanaged information.	Prior history of success, Reinforcement traps, , Personal responsibility, Ego implications	Competitive rivalry, Revelation of errors and failure.	Organisational (institutionalization, Pursuit of enterprise growth)